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The United States Army

Objective Force

Operational and Organizational Plan for Maneuver Unit of Action

U.S. Army Training and Doctrine Command, Fort Monroe, Virginia

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

This chapter provides the ideological and historical underpinnings for Army transformation and for the Unit of Action (UA) from the national, joint, multi-national, interagency and Army perspectives. It also lists key assumptions established in developing this operational and organizational plan and discusses in broad terms the operational considerations used in shaping its design. **The concepts and capabilities described in this O&O plan are intended for the decade between 2010 and 2020.**

1.2 WHY TRANSFORM THE ARMY?

1.2.1 Joint Vision

The National Military Strategy[1] and the Defense Planning Guidance are the foundations for the requirements of our military forces. The United States Armed Forces must be able to accomplish the national military objectives, defined in the National Military Strategy as "Promote Peace and Stability and Defeat Adversaries"[2], and in pursuit of those objectives to "…Shape the international environment and respond to the full spectrum of crises, while we prepare now for an uncertain future." Additionally, the nation's military strategy, military objectives, and defense policy goals drive six critical transformation goals for our forces:

- Protecting critical bases of operation;
- Protecting and sustaining US forces;
- Denying enemies sanctuary;
- Assuring information systems;
- Enhancing capability and sustainability of space-based systems;
- Leveraging information technology.

As stated in the National Military Strategy, the U.S. Forces help shape the international environment primarily through their inherent deterrent qualities and through peacetime military engagement. The U.S. military will be called upon to respond to crises across the full range of conflict, operating across the spectrum of military operations, from homeland security to humanitarian assistance to fighting and winning major combat operations (MCO) and conducting concurrent smaller-scale contingencies (SSC).

Additionally, the U.S. must maintain the military superiority essential to global leadership. To be credible in the future, U.S. forces must transform across the full range of Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF)[2] to develop a new level of responsiveness and relevance while remaining engaged worldwide, always ready to fight and win.

Understandably, Army transformation is grounded in the operational framework of joint doctrine and concepts for future joint and combined operations. Joint force commanders require Army elements to be able to conduct any mission assigned in the context of rapid decisive operations. The Unit of Action is a key element of this Army component. It is strategically responsive, rapidly deployable anywhere in the world in 96 hours after liftoff, provides overmatching lethality with advanced survivability against any threat, versatile and responsive to the needs of the Joint Task Force Commander, able to transition rapidly between missions, tactical engagements and battles with minimal organizational adjustment. The UA is self-sustaining for 3-7 days upon arrival, and then requires a reduced logistics footprint for continued operations.[3]

1.2.2 The Army's Purpose

The Defense Planning Guidance, FY 2004-2009, requires cross-service force transformation focused on strategic agility to bring rapid decisive combat power to bear anywhere in the world. It outlines four policy goals to which the Army will significantly contribute:

- Assuring allies of U.S. national resolve and military capability.
- Dissuading adversaries.
- Deterring aggression and countering coercion.
- Decisively defeating an adversary at the time, place and in a manner of our choosing.

Joint Vision 2020 further clarifies the Army's role, mandating common focus across the services and maintaining the momentum of transformation initiated in *Joint Vision 2010*. The Army does not conduct operations by itself; it conducts operations as part of a joint, multi-national and interagency team. Clearly, there is a requirement for skillful integration of service core capabilities to operate as a joint force or to operate effectively as one element of a unified national effort.[4]

The Army's basic national defense responsibilities are enduring. Ground forces control the terrain on which populations and political authorities reside, and defeat opponents in their protective sanctuaries or force them into the open where they can be destroyed with joint effects. The

presence of Army forces, leaders, and soldiers provide the Joint Task Force commander situational dominance by aggressively gaining the initiative, building and maintaining momentum, and exploiting success to control the scope and tempo of operations in war and in operations other than war.[5]

The Army's core purpose remains decisive operations. At its most fundamental level, war is a brutal contest of wills. Winning decisively means compelling our enemies to submit to our will. Potential opponents must be convinced we are able to break them physically and psychologically, and that we are willing to bear the cost of doing so. For some opponents now and others in the future, mere punishment from afar will not suffice. For these adversaries, the only way to guarantee victory is with ground forces that control and occupy their territories, and destroy them in their sanctuaries.[6]

1.2.3 The Army Vision

The Army Vision[7] describes how the Army visualizes fighting in the future Operational Environment (OE) as part of the nation's joint military forces. To maintain military supremacy in the future OE, we must be a more strategically responsive, deployable, agile, versatile, lethal, survivable, and sustainable force, effective in all situations from major combat operations (MCO) to homeland security. These seven characteristics of the Army Vision (responsiveness, deployability, agility, versatility, lethality, survivability, and sustainability) are the foundation for the development and evolution of Army organizations, their operational concepts, required capabilities, and missions.[8]

Our forces must have the ability to generate overmatching combat power by leveraging the synergy of maneuver, firepower, protection, and leadership; empowered by dominant situational understanding resident in a vibrant knowledge network. This combination of capabilities increases both lethality and force survivability exponentially.[9] At the same time, Army forces must contribute directly to the joint force capabilities for dominant maneuver, precision strike, full dimensional protection, and focused logistics.

1.3 THE ROLE OF UNITS OF EMPLOYMENT

Units of Employment (UE), typically division- and corps-like elements, are highly tailorable, higher-level echelons that integrate and synchronize Army forces for full spectrum operations at the higher tactical and operational levels of war/conflict. Units of Employment focus on battles, major operations, and decisive land campaigns in support of joint operational and strategic objectives. Units of Employment participate in all phases of joint operations from initial entry to conflict termination in any form of conflict and operating environment, in all weather and terrain conditions.

UEs are capable of command and control of Army, joint, and multinational forces. They will be organized, designed, and equipped to fulfill command and control (C2) functions as the Army Forces (ARFOR) Component, Joint Force Land Component Command (JFLCC), or the Joint Task Force (JTF). UEs will also have the inherent capacity to interact effectively with multinational forces as well as with interagency, non-governmental organizations, and private organizations. In historical terms, UEs represent the field army, corps and divisions.

The general-purpose quality of this force will ensure its long-term relevance to adaptive, sophisticated threats and the frequently changing requirements of the emerging operational environment. At the operational and higher tactical level, units of employment provide future joint force commanders with an extraordinary combination of options to exploit opportunity and respond to uncertainty across the spectrum of conflict. Through the conduct of multiple decisive tactical actions, executed at high tempo, UE operations will lead quickly to the enemy's operational disintegration and the successful achievement of campaign objectives. *Within this framework of decisive operations, the Army's ability to close with and destroy enemy forces will remain critically important.*

UEs orchestrate continuous shaping operations with deception, information operations, extended-range precision fires and selected air-ground maneuver operations for tactical and operational-level effects. UE operations are carried out with the routine and deliberate employment of joint effects and resources.

The divisional UE core missions and developmental framework are listed in figure 1.

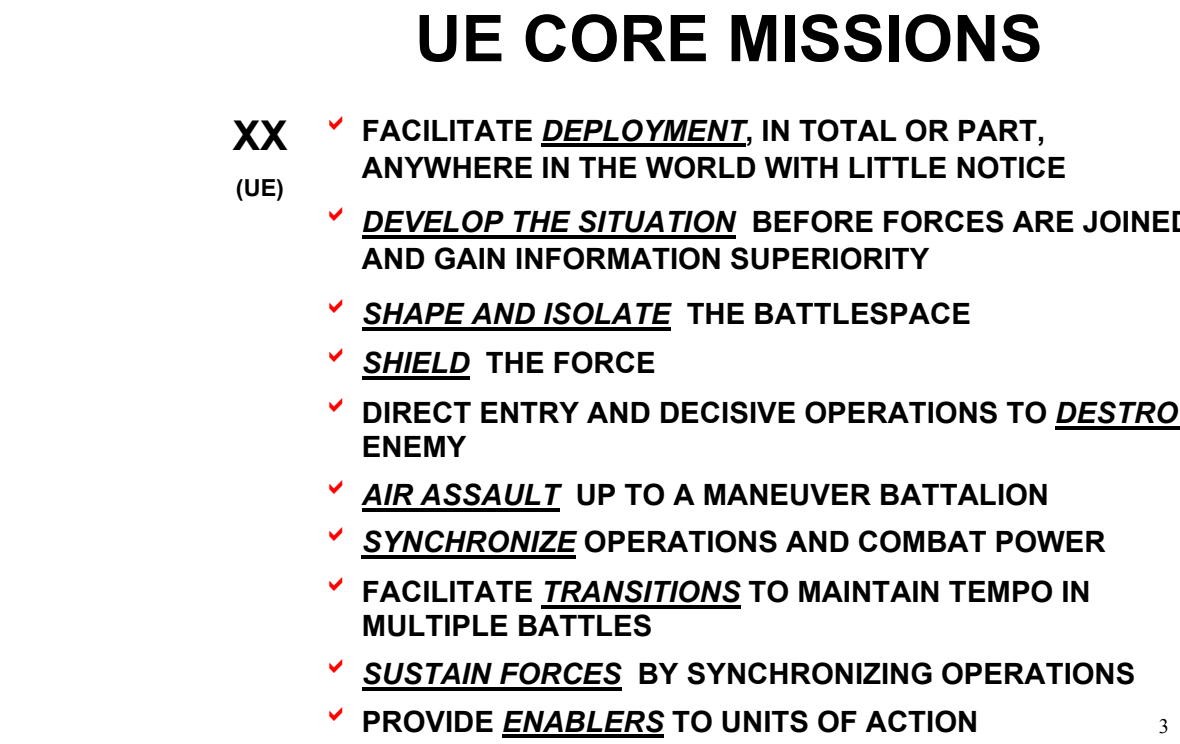


Figure 1

The chart below describes how the units of action are employed in the battlefield framework. The UA operates with assigned Areas of Operation (AO) and, as the chart illustrates, those areas may or may not be "hub to hub." The areas immediately around a UA's Area of Operations comprise its Area of Interest that the higher headquarters (divisional UE) has responsibility for. In these areas, the divisional UE has to be informed as never before. It must gain and maintain contact with the enemy to provide a knowledge base to the fidelity needed to enable its UA combat formations to move to positions of advantage where and when needed. In this framework, the divisional UE develops its knowledge base from troops in contact, new C4ISR capabilities organic at the UE, and fused C4ISR from external sources. The divisional UE must **'see'** the entire battlespace since it owns all areas not assigned to the UA, **'understand'** the area of operations and area of interest and **'shape'** the UA close fight in order to bring a decisive quality to the tactical fight.

More information on the Unit of Employment is found in Annex B.

TACTICAL AREA OF OPERATION

Divisional UE has to be informed as never before to gain / maintain contact. Otherwise, will not be able to position formations where needed.

Knowledge base comes from:

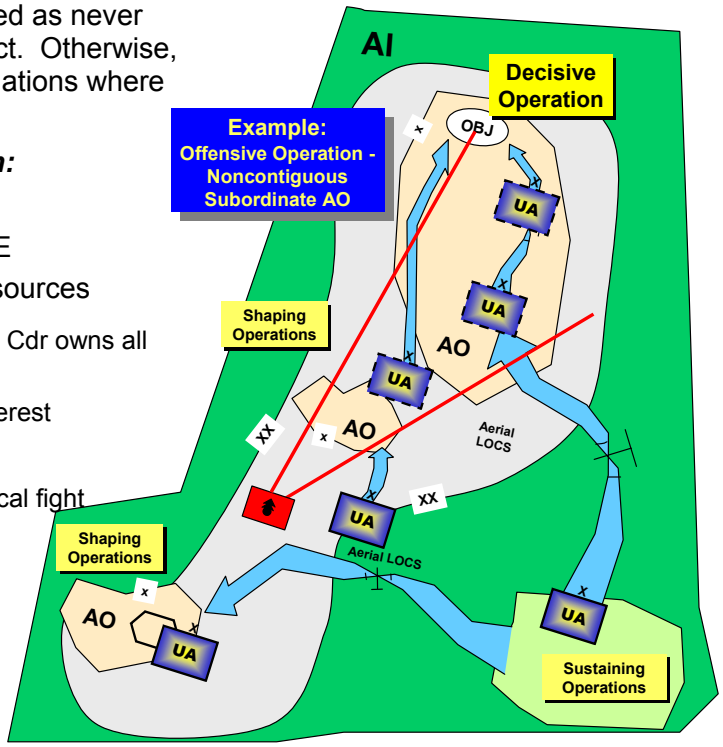
- Troops in contact
- New C4ISR capabilities in UE
- Fused C4ISR from external sources

Must **'See'** the entire Battlespace - Cdr owns all areas not assigned to UA

Must **'Understand'** the Area of Interest

'Shapes' the UA Close Fight

Brings 'decisive' quality to the tactical fight



1.4 WHY THE UA?

ASSESSMENT OF CURRENT FORCE DESIGNS

	Responsive	Deployable	Versatility	Agility	Lethality	Survivability	Sustainability
SF & Ranger	G	G	G	A	R	R	G
Airborne	G	G	A	R	R	R	R
Light	G	G	A	R	R	R	A
SBCT	G	G	A	G	A	A	A
Armored Cav / Mech Inf / Armor	A	R	A	A	G	G	R
Air Assault	A	R	A	G	G	A	R

To accomplish the full spectrum of missions this nation calls upon its Army to perform – from homeland security, to humanitarian assistance to SSC or MCO -- the Army today draws from nine ground combat formations. These are Special Forces groups and the Ranger Regiment, airborne, light infantry, the Stryker brigade, heavy forces comprised of mechanized infantry, armor and armored cavalry, and air assault formations. These formations account for the entire range of threat and all conditions and variables in which these forces will be employed – from jungle to mountainous to urban to open,

rolling terrains in all weather situations. These are listed in the general sequence of their strategic responsiveness. Light forces are very responsive and strategically agile, but once employed lack combat power and lethality, survivability, tactical mobility, sustainability and the ability to generate a knowledge base to develop the situation, shape and isolate the battlefield. Heavy forces lack strategic responsiveness outside designated major theaters that have Army Preposition Stocks, have problems being employed in some austere environments, and require very large logistical footprints to sustain combat operations.

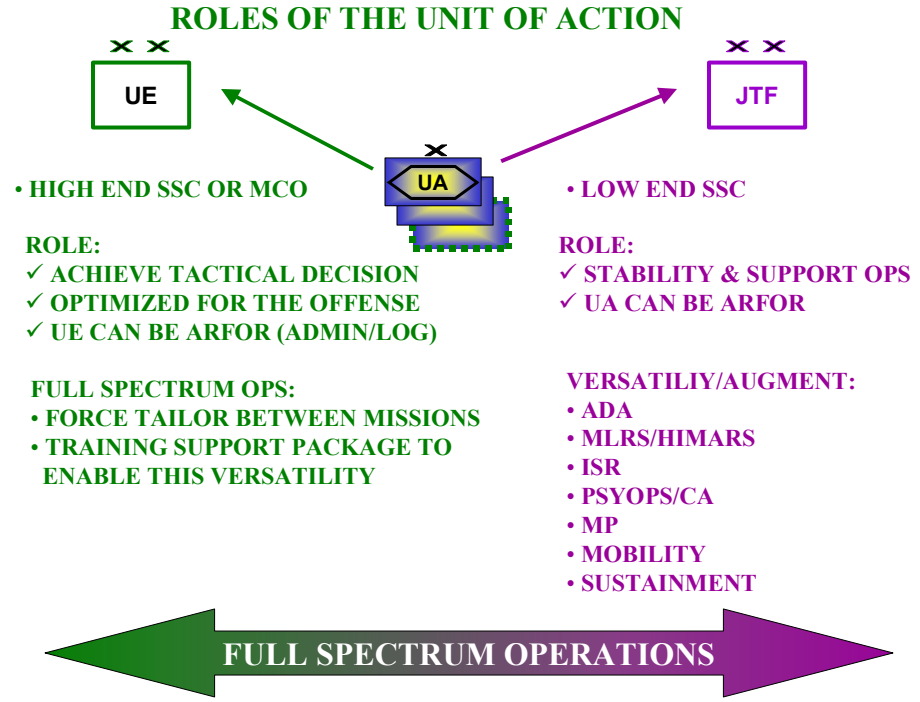
The UA will account for the mission sets of these combat formations, with the exception of SF, Ranger, and airborne forces. The Army's Unit of Action will be part of a joint team that is decisive in any operation, against any level threat, in any environment. This team must be strategically and operationally responsive, rapidly deployable, able to change patterns of operations faster than the enemy can respond, and adjust to enemy changes of operations faster than he can exploit them. The hallmarks of UA operations will be the significant ability to develop situations out of contact, come at the enemy in unexpected ways, use teaming with leader initiative, maneuver to positions of advantage with speed and agility, engage enemy forces beyond the range of their weapons, destroying them with enhanced fires, and assaulting *at times and places of our choosing*. Although not necessarily sequential, it is the combination of fires (precision volume) and maneuver, and the tactical assault that makes the enemy's problem so difficult. The cumulative effect of simultaneous, multi-dimensional operations will be to dominate an adversary, enabling friendly forces to destroy, dislocate and disintegrate him, and transition to the next engagement.

Today, we have a superb fighting force; the best Army conducting combat operations in the world. It will remain dominant in the future. It is ready to perform the full spectrum of missions directed by our National Command Authority. But, this force will gradually lose its decisive edge against modernizing, adaptive forces that are designing forces and systems to overmatch our current capabilities. None of our current organizations have the complete array of responsiveness, deployability, mobility, agility, lethality, survivability, and sustainability necessary to be dominant across the spectrum of operations in the full range of future conflict. The Stryker Brigade Combat Team (SBCT) for example, provides an interim solution to the dilemma of responsiveness and combat power, but it is optimized for smaller scale contingency (SSC). It is capable of winning decisively in major combat operations (MCO) only with significant augmentation. We must develop new organizational and operational concepts optimized for offensive combat operations over the next several decades.[10] We seek leap-ahead

enhancements in operational effectiveness not available in current force alternatives.

The Army operates as part of the joint, multi-national and interagency force, and constitutes the preponderance of the land component of that force.[10] The Army's ability to dominate the tactical level of war – the short sword fight – is essential for Joint Force success.[11] The Unit of Action brigade is designed to win on the offensive, across the spectrum of conflict, against any expected adversary as part of a division-like Unit of Employment or Joint Task Force (JTF).

The Unit of Action normally fights under the command and control of a divisional Unit of Employment. The divisional UE fights battles; the Unit of Action orchestrates multiple engagements to win battles. The Unit of Employment employs Units of Action to achieve tactical decision. The Unit of Action integrates organic and supporting ISR, fires, and maneuver to close with and destroy the enemy.



In a low end SSC, one or more Units of Action can operate directly under a JTF. A Unit of Action can serve as an ARFOR for the JTF in this framework.

The Unit of Action is not a fixed organization. It has the capability to command and control up to 6 maneuver battalions. It is also able to employ a range of supporting capabilities, from a Unit of Employment or the JTF, to perform a variety of missions; i.e., reinforcing fires, engineers, MPs, air defense, PSYOPS, Civil Affairs, etc. The UA can force tailor up with

additional capabilities for specific missions and between missions in the campaign. Its C4ISR architecture enables the UA to increase its span of control. The Forward Support Battalion can likewise be tailored up with additional sustainment capabilities when required to support UA augmentation.

The Unit of Action is designed to ensure a campaign quality. Although it has the responsiveness and deployability to achieve a 96 hour deployment goal, it is designed with the durability, endurance, and stamina to fight battles and engagements for the duration of a campaign, focused on decisive points and centers of gravity . It can perform tactical and operational maneuver by land, air, and sea. Given its inherent tactical mobility, it can land at points removed from its objectives, out of range of enemy defenses, then move by land to complete its mission . This capability applies not only to entry operations, but also to theater operations throughout the campaign.

The UA will master the transitions in warfare that sap operational momentum and threaten initiative retention. Superior situational understanding, the hallmark of the Objective Force, delivers the advantage required to close with and destroy the adaptive and asymmetric adversaries of the future and allows the commander to set the requisite conditions for mission success in time and space.[12]

Most importantly, the Unit of Action is based on capable, lethal small units. At every echelon, the UA forces dominate their environments in combat through entry operations, movement to the fight, decisive operations, and transition. Commanders who are expert in using the terrain, knowing the enemy, and having the key instincts to "feel" the battle will lead this force.

1.5 ASSUMPTIONS

The Unit of Action O&O development is based on the following key UA and UE assumptions. The key Unit of Action assumptions are:

- The acquisition community will be able to deliver required technologies IAW Objective Force threshold and blocking strategies, and resources will be available.
- Developing UA doctrine will complement developing Joint doctrine.
- Sufficient strategic lift, air and sea, (including Civil Reserve Air Fleet (CRAF) and commercial) and intra-theater air/land/sea lift is available to transport the UA to theater IAW the required metric of deployment within 96 hours of takeoff. [13]

- The geographic combatant commander, joint force commander, and Army force commander will establish the conditions required for deployment and employment.
- The Unit of Action will be C130 deployable to support key capabilities described in the Objective Force operational concept that will improve UA characteristics of responsiveness, deployability, agility, and versatility.
- Virtually all UA missions will be conducted within a joint, multi-national and interagency framework.

The key divisional Unit of Employment assumptions are:

- Provides fidelity of information for the UA to remain on the offensive and move to a position of advantage.
- Battlefield preparation prior to forces being joined is successful:
    - In achieving favorable correlation of forces and means for UA to move to advantage and enter contact at advantage.
    - During UA entry, approach to contact and transition from one battle to the next.
    - Once the UA is committed, the divisional UE immediately shapes the battlefield for follow-on fights.
- UA is able to conduct combat operations to close with and destroy the because the division Unit of Employment shields and isolates the battlespace:
    - Through access to increased lethality at extended range against complex threat.
    - With acquisition means, communication links and a tight sensor-to-shooter construct that is proactive, not reactive.
- ISR assets allow the UA to operate in non-contiguous areas for extended periods of time and function widely separated.
- Employs acquisition and long-range destructive fires against most dangerous and high payoff target sets.
- UA easily accepts and provides enablers such as ISR, fires, aviation, air and missile defense, engineers, and military police.
- Sustains operational momentum through multiple battles by cycling forces in and out of contact.
- The primary purpose of aviation lift in the divisional UE is to surge logistics on air lines of communication:
    - Allows greater freedom of maneuver.

- Accounts for the fact that the UA is not tethered to tenuous ground lines of communication.
- Is able to support one UA for up to three days over extended air lines of communication.
- Can be augmented as required with additional lift from the corps-like UE.

- Engineers organic to the UE have some gap crossing capability, and robust C2 to accept tailoring.
- The UA sustaining base is designed to support divisional UE troops and aviation. The majority of UA log/sustainment is accomplished by throughput from a higher echelon area support group directly to the UA.

DEPLOYMENT CONSIDERATIONS

The Unit of Action will be C130 deployable to support key capabilities described in the Objective Force operational concept that will improve UA characteristics of responsiveness, deployability, agility, and versatility.

We seek to introduce *unit*s at multiple points of entry other than traditional fixed APODs and SPODs. This capability is required to ensure unpredictability in how forces arrive in theater and counters the growing trend in anti-access investments by potential threats. Austere points of entry, not reliant on large runways, port facilities, and infrastructure, are more readily available in most theaters. They are also more difficult to target, and can be used in combination.

By sizing systems and organizations against the C130, we increase the options available to the combatant commander for entering forces into theater; we can combine available C130s and C17s to maximize force flow using multiple entry points to bring in combat configured units. This capability improves not only our entry capability but also the continued flow of forces later in the campaign for decisive operations.

A C130 profile gives us maximum flexibility in pursuing future advanced airlift options that range from vertical lift concepts (Joint Transport Rotorcraft/Future Transport Rotorcraft) to super short takeoff and landing concepts (Advanced Theater Transport).

Systems that are sized to the C130 will make Units of Action compatible with the Theater Support Vessel, allowing us to insert combat capable units on these vessels to land at less predictable locations in theater. Units of Action will also fit more easily on current and future strategic sealift (SL7, RoRo, as well as shallow-draft high-speed ship concepts).

The UA must be capable of supporting operational maneuver directed by the JTF commander by combining vertical and inherent horizontal maneuver qualities of FCS equipped units. During entry or decision operations the UA can be transported by a wide range of air, land or sea modes and leverage options for entry points to reposition the UA at advantage in order to seize opportunity and attack enemy centers of gravity or decisive points. For this reason, the UA must be tailorable to be delivered into austere environments and operate autonomously or semi-autonomously.

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[1] National Military Strategy (date)

[2] DoD CJCSI 3500.02/C, 29 February, 2000

[3] SoRC A-4, F-2

[4] Mission Needs Statement, 28 May 02

[5] FM 3-0, Operations, U.S. Army White Paper, Objective Force Concept

[6] U.S. Army White Paper, Objective Force Concept

[7] Dated 13 NOV 2001 http://www.army.mil/2010/

[8] Mission Area Analysis, TRADOC Analysis Center, May 2002

[9] U.S. Army White Paper, Objective Force Concept

[10] Mission Needs Statement, 28 May 02

[10] FM 1, The Army

[11] U.S. Army White Paper, Objective Force Concept (para. III, C)

[12] SoRC: C-1, C-2, C-6, C-7, C-8

[13] SoRC: B-1

CHAPTER 2 OPERATIONAL ENVIRONMENT

2.1 INTRODUCTION

The Unit of Action must dominate across a wide range of future operational environments. Critical variables - present in all of these environments - will shape the nature of future combat operations at Unit of Action level.

Critical Variables in the Future Operational Environment at Unit of Action

Complex terrain & urban environments
Modernized Industrial Age Forces
High-tech systems/ Hybridization
Failed state the norm
Internal Society Fractured
International Interest in region
National will at issue
Media/Info Attack/IO
NGOs/IOs engaged
Crime rampant
Economics dictates campaign
Time critical

. . . present in all UA conflict environments . . . will alter the future Battlespace . . . must be accounted for

Unlike previous designs, optimized for action against an echeloned enemy on open rolling terrain, the Unit of Action must fight and win across a wide range of conflict situations, from high to low ends of the operational spectrum, from Major Contingency Warfare to Stability and Support Operations. The terrain, weather and enemy will remain at the forefront of the challenging set of variables in the future operational environment.

2.2 TERRAIN, WEATHER AND ENEMY

2.2.1 Terrain

Future operational environments will feature a range of difficult terrain - covering the gamut from open rolling to complex, mountainous to urban, and will include jungle and desert as well. The UA will encounter and must master multiple terrain dimensions. Mountains, in both arid and wet environments, often with steep slopes and elevations, will challenge the Unit of Action Soldier as well as accompanying aviation and reconnaissance support. Open and rolling ground will frequently be cut by compartments, and with micro relief, which can and will be used to advantage by adaptive opponents. Environments with rivers and streams will drive need for a gap crossing capability accompanying the Unit of Action.

By 2020 over 60 percent of the world's population will live in cities. Complex urban environments, ranging from modern skyscraper jungles, to huge shantytowns are therefore an increasingly predominant feature of the operational environment. These environments will challenge the Unit of Action in a complex 3D fashion - elevated, surface and subsurface. Subways sewers and tunnels will be prominent in threat urban operational patterns. Wires, overhead cables, towers, and other obstructions will challenge the Unit of Action's aerial ISR suite.

Clutter - electronic and physical - rubble, and other obstructions common in complex populated environments will challenge communications and ISR. Precision engagement driven by technical ISR suites will be difficult under these circumstances.

Above all, terrain enables the adaptive opponent to offset friendly force advantages. The threat will use highly restricted and urban terrain to hide, and shield from US precision fires, limit line of sight, avoid target acquisition, and leverage constraints of weapon trajectories and munition effects.

For more terrain information refer to annex E.

2.2.2 Weather

A range of challenging weather and climatic conditions will likewise characterize those environments where the Unit of Action must be dominant. Temperatures will range from frigid cold to enervating heat in desert and jungle. Temperatures will challenge soldier endurance as well as system performance. Sensors and communications systems will be especially susceptible to extremes of weather, challenged by rime icing, and other weather phenomena. Many areas of conflict will require operations at high

altitudes and temperatures requiring Army aviation assets to be optimized for the 'high hot' capabilities (4000 feet above sea level and 95° F) with adequate vertical rate of climb characteristics.

Predictive and real time local weather will be important, and must be immediately available - on demand - to the Unit of Action. Adaptive opponents will also use weather as a force multiplier. Weather degrades the UA ability to conduct reconnaissance and see first. The threat will use adverse weather to reposition forces, to conduct attacks, and to re-supply.

2.2.3 Enemy

2.2.3.1 Strategic and Operational Pattern

The Unit of Action must triumph over an adaptive learning opponent greatly empowered by a thorough understanding of his battlespace, environment and technology. Future threats are informed by U.S. patterns of operation and tactical methods. The enemy will likely view us as predictable, casualty adverse, unwilling to close in combat, and reliant on precision technology - applied from a distance - for victory. This opponent will see our society and its soldiers as soft, unwilling and unable to deal with harsh battlefield realities. At the strategic level, the future enemy will focus on attacking U.S. National will. He will work using all elements available – diplomatic, informational, military and economic - to preclude U.S. military engagement in his region. At the same time, he will train and equip to dominate local opposition - primarily through conventional means, backed by often ruthless tactics, and focused on regime preservation. Operational patterns will concentrate on employment of a series of actions to deny access to the region itself - ports and airfields, in particular, along with maritime zones - operational exclusion is at the centerpiece of this approach. The "so what" to the Unit of Action of these likely enemy strategic and operational patterns, is that the organization must be designed for rapid entry through unimproved or expedient ports, and into austere forward airfields. At the same time, soldiers and leaders in the Unit of Action must be prepared for the physical and moral effect of strikes at the U.S. homeland, and at facilities along the strategic lines of communication.

2.2.3.2 Tactical Method

Faced with the realities of UA capability overmatch, the threat will adapt tactics to fight and survive through a combination of conventional and asymmetric tactics. The threat has the "home court" advantage in that he understands his battlespace and has studied his enemy. He will work to use these advantages to deny the situational understanding crucial to UA success.[1]

During entry operations the enemy will focus his efforts on continuing actions - at the tactical level - through use of Special Purpose Forces (SPF) and long range fires to limit our access, in effect to "meter the flow" of U.S. forces to his advantage. He will work to keep us out of areas and facilities key to his own operations, and will allow us access to areas where we mass in ways, which present lucrative targets for deep and close fires.

In the defense, the opposition will maintain a degree of tactical dispersion necessary to avoid precision strikes from air or sea based threats. His preferred tactical venue is complex terrain - urban areas will be the scenes of much, if not most, future tactical action. Future threats will seek battle in complex and urban terrain as a way of offsetting UA advantages, particularly in its operating construct of standoff / long-range precision fires. Future opponents will employ camouflage, cover and deception to reinforce their tactical defensives. They will employ camouflage, cover and deception to conceal positions and intent, and use adverse weather, complex terrain and low light conditions to frustrate Unit of Action (UA) information gathering. Enemy forces will mask their own high value target sets by terrain or urban structures, mix with local populations to avoid identification and to facilitate close-in attacks and ambushes. He will use all means to avoid UA efforts at effective targeting, especially at the lethal tactical level. Potential target sets will be fleeting; movement will be executed as small mounted elements, or in dismounted fashion over a sequence of short distances. Movements will be masked amongst non-combatants to further complicate our targeting abilities. Finally, the enemy will employ hugging tactics to present danger-close fires and the risk of civilian casualty problems.

The enemy's offensive tactical actions will be opportunistic; surprise will frequently be the centerpiece of these tactical designs. The opponent will strike in elements from team to battalion, sometimes brigade, when and where the opportunity presents - key will be the right combination of terrain, adverse weather, and our own tactical and operational predictability in setting conditions for these actions. UA forces will face dispersed, often decentralized enemy units operating in non-linear fashion that will attack from the front, rear, sides, above and below. Threat forces will attempt to draw the UA into dangerous close combat situations and attack with a combination of older but still lethal technology and state-of-the-art high tech weapons. Threats will use their precision munitions, purchased on the open market, or locally developed expedients, or adaptations, to destroy Unit of Action systems and soldiers, to mass and attack when they can create the opportunity to do so, and to disperse quickly. In selected instances, threat forces opposing the UA will have the ability to employ weapons of mass destruction / effects. When the enemy attacks, he will be in a position that he believes gives him overmatch in every way - technical, as well as physical and moral.

2.2.3.3 Threat Technology Trends

Technology is proliferating rapidly; it is readily available now and in 2020, we expect it to be simple to use and it will enable the threat to gain some niche parity when engaged with Unit of Action forces. Potential threats hold a home court advantage as their respective military or paramilitary forces are optimized for their regional environment. They will seek niche technologies and advanced weapons systems enabling them to selectively improve their capabilities, and affect ours. [2]

Threats will possess advanced communications and signature reduction technologies to better coordinate their activities and frustrate UA target acquisition. They will use technology-enhanced weapons, such as cruise missiles and improved tactical ballistic missiles in an anti-access strategy. UA forces in combat will face threats with armor and anti-armor capabilities, with increased precision and ranges, advanced warheads and larger calibers, active and passive protection systems, directed energy weapons, and night vision capabilities. These capabilities, and more, will be readily available on the World's arms markets. We will not enjoy the complete technological advantage some have predicted – our enemies, in at least some areas, will enjoy technological parity.

2.3 OTHER ENVIRONMENTAL VARIABLES - ADDITIONAL FOCUS FOR FULL SPECTRUM OPERATIONS

The nature of the political, economic, and social environments in the wide range of difficult environments where Army forces will be employed drive a requirement for a new kind of force at Unit of Action level - one which is absolutely dominant in combat, but which can appreciate and leverage political and informational domains to advantage. The future Unit of Action must be absolutely superior in complex situations where sophisticated political and informational skills are required in small unit leadership. Adversaries will leverage information, the media, and ethnic and religious fractures to maximum advantage. To dominate in these environments, the UA must be trained, led, and equipped to achieve maximum advantage in the complex situations requiring more than conventional minor tactical skills.

Austere, often deteriorating, infrastructures - ports, airfields, road networks, and buildings, as well as communications infrastructure will not be up to "first world standards". The Unit of Action must be effective at anticipating and adjusting to these environments. At the same time, future opponents understand and will leverage the existing infrastructure to

advantage - targeting fixed facilities and areas where our historic patterns say we operate.

Disease, often unknown or extinct in the developed world, will be a common feature of future operational settings at UA level. Toxic industrial chemicals and industrial decay will prevail. Soldiers and leaders must be masters of operating successfully in these circumstances.

These environmental realities will shape where and how the Unit of Action is committed, and will drive new solutions and operational and tactical patterns of employment.

2.4 IMPLICATIONS FOR THE UNIT OF ACTION

- Weather and terrain will be extreme, and will vary widely in character - the Unit of Action must be dominant across all varieties of ground and climate.
- The spread of urban environments and mix of civilians, paramilitaries, insurgents and others in close physical proximity and often cooperation with formed military forces will challenge all aspects of operations at the Unit of Actions level.
- Opposition will be dispersed, camouflaged, and difficult to locate from a distance. ISR must be multi-disciplined, and capable, close and distant, in order to understand enemy composition, disposition, and intent to the fidelity required. It must also be able to discriminate and see through deception.
- Units of action will routinely operate across a dispersed variable highly lethal environment; to survive and win, they must "see first" - enabled by organic/embedded, SOF, UE, Joint and National ISR before and during entry and decisive operations.
- In the future, lethality and survivability overmatch will have to be accomplished by a combination of: using terrain to advantage for its cover, concealment and mobility; superior dash speed from cover to cover; units that can displace while maintaining mutual support in overwatch; networked C4ISR; assured first round kill; using suppressive and obscuration fires when closing with and assaulting the enemy; and leaders who are competent and capable to do the right thing at the right time and do it effectively.
- Sensor - shooter links must be informed and near instantaneous.
- Squads and platoons must be capable of providing overwatch in mutual support of moving formations and performing immediate action at ranges beyond line of sight, and expect to be engaged by opponents similarly equipped and trained, on their own ground.
- Units of Action must triumph in difficult close fights, on a sustained basis, through the depth of the battlefield. It's about empowering lethal units

662 that are very agile, responsive, and can operate with greater competence,
663 confidence and purpose. Freedom of action, mutual support through teaming,
664 speed, mobility, competency, capability and purpose will be key to success.

665 • Mid grade and junior leaders must effectively recognize and solve
666 problems in complex situations with political and informational dimensions.

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[1] Some of the source material for the 'tactical threat' include

Department of the Army DCSINT. Threat Panel White Paper. Washington: GPO, 1999. U.S.

National Ground Intelligence Center Technology Watch Program. NGIC, Jan 01 – May 02.

Senate Select Committee on Intelligence. Global Threats and Challenges to the United States and Its Interests Abroad. Washington: GPO, 1999.

Selected FBIS media sources, Feb 1997- Jun 1999.

TRADOC DCSINT, White Paper: New Operational Threat Environment, October 2001

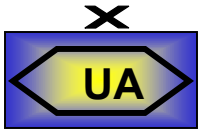
DRAFT TRADOC PAM 350-2-X, The Future Operational Environment, 15 June 2002

U.S. Marine Cops Intelligence Activity. Marine Corps Midrange Threat Estimate 1997-2007. Quantico: GPO, 1997.

[2] Sources for the tactical 'threat technology trends' include:

National Ground Intelligence Center. A Preliminary Assessment of the Asymmetric Threat (2010 and 2020) to U.S. Army Systems. NGIC-1572-0506-02, May 02.

CHAPTER 3 ORGANIZATIONAL DESIGN



This chapter describes the organizational design to be used in development of the Unit of Action. It includes missions, tasks, and organizational relationships. Combat and materiel developers, doctrine writers, trainers, and leader developers and a broad audience of leaders and Soldiers both within the Army and other services will use this developmental model. However, it is very important for this audience to understand ' the why' of this developmental design.

In the design of the Unit of Action, we have empowered leadership with access to external information that can be distributed rapidly to small units for greater operational effectiveness. Information in this organization can quickly become knowledge for leaders, tailored quickly to mission, task and purpose, distributed within the organization over premier communications systems, and networked to support commanders and leaders. Within the UA, there will be a first class Military Intelligence element along with manned and unmanned ground and air R&S. The 'triad' of communications, analysis, and reconnaissance will take the organization to a new level of situational understanding, particularly when forces are joined in contact—exactly the time when our forces have always had the least situational understanding.

The UA developmental design supports teaming the organization in a way to achieve an exceptionally high level of competency to develop the situation before and during contact, during tactical assault and at transitions. We have strengthened the ability of commanders and leaders to see first and to understand first, to act first and to finish decisively as a core capability at every echelon of the UA.

But C4ISR alone will not provide the overmatching qualities the UA needs to be operationally effective. The UA builds lethal overmatch through a new combat power formula. In the past, combat battalions relied on Maneuver, Firepower, Protection and Leadership as the formula for Combat Power: CP=M+F+P+L. However, in the UA information raises combat power exponentially: $CP=(M+F+P+L)^{Information}$. The strengthened ability to see the environment permits competent and capable commanders and leaders to seek the advantage aggressively, employing combat skills and competence of the formation as a fully integrated team of teams to fight collectively to win multiple engagements. Also, built into the organization is the ability to employ lethality from internal and external sources. This is a combined arms

force with the ability to provide mutual support and cooperative engagement between platoons, companies, and battalions. Structurally and through the network, sensor-shooter relationships begin at the squad and platoon level throughout the formation to provide the ability to direct effects from internal UA elements, supporting UE forces, and joint assets with speed and accuracy beyond that which we have ever achieved in the past (seconds vice minutes or hours for effects with a high degree of accuracy).

A key construct of the operational effectiveness of the UA is that its powerful multipliers to achieve lethality and survivability overmatch are accomplished by a combination of leveraging: situational understanding; using terrain to advantage for cover, concealment and mobility; employing superior dash speed from cover to cover; networked units that can displace while maintaining mutual support in overwatch; lethality that assures first round kill and can employ suppressive and obscuration fires when closing with and assaulting the enemy; and leaders who are competent and capable to do the right thing at the right time and do it effectively.

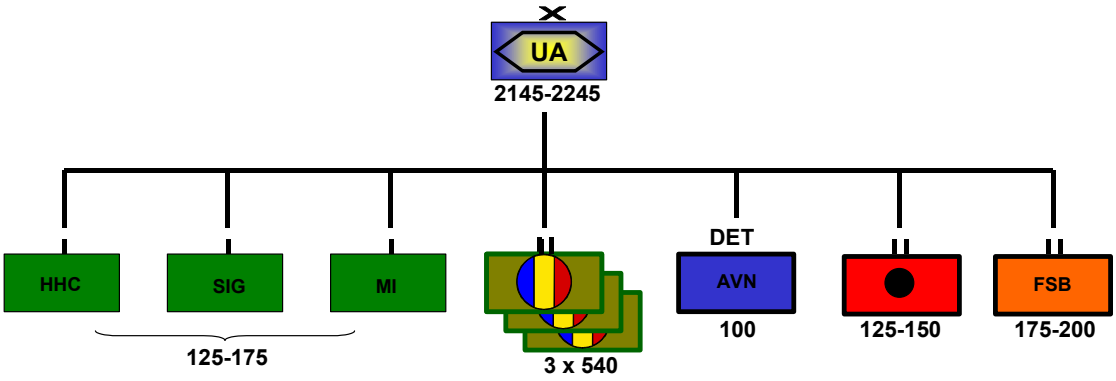
The UA fosters the ability of Soldiers and leaders to achieve these overmatching qualities. UA emphasizes teaming of teams vice individual platform capabilities to achieve combat power synergy. Commanders have the ability to task organize rapidly and fight aggressively in teams of teams to achieve mission, task and purpose. The UA distributes fires from internal and external capabilities more effectively than we have in past.

The UA Brigade design is inherently modular. Based upon mission requirements, we can add or take away units and capabilities. For example, the Brigade can rapidly integrate additional combined arms battalions and maneuver support capabilities. The network facilitates rapid force tailoring and teaming as required.

Because of the combined arms framework of the UA, it is essential to develop Soldier and leader skills and a high level of unit cohesion. Leaders must understand how this formation achieves overmatch through teaming, networked situational understanding, and precision of assured first round kill. Fundamental tactical competencies will be key to readiness of the UA formation. We are talking here about a new level of competency in leaders enabled by technology for efficiency and effectiveness. We are looking for leaders who have guile, courage, and are tactically smart. UA is organized around fighting teams who are competent and capable at the collective level. Leaders must to be skilled in synchronization and coordination, able to dominate in the realm of tactical decision-making, and be combat proficient at the collective level. UA leaders must: know terrain and leverage it to achieve positional advantage; understand how to achieve freedom of maneuver through the use of terrain for cover and concealment; know how to employ suppression to isolate an enemy or to protect maneuver; and

understand combined arms integration. The UA design enables leaders to use terrain to advantage, integrate maneuver and fires, synchronize combat power, and reconcile tactical dilemmas in a manner that is unparalleled.

The UA design below accounts for the Operational Environment (Chapter 2), the Operational Concept (Chapter 4), the DOTMLPF Implications (Chapter 5), and Required Capabilities (Chapter 6). The UA design provides a solid basis for continued development, analysis and study.



UA Pacing Items Recap

54 FCS Infantry Carrier	24 NLOS Mortar
54 FCS Mobile Gun System	108 Missile in a Box (Platform TBD)
80 C2 Vehicle	27 FCS-R&S Vehicles
12 Comanche	TBD Armed Robotic Vehicles
18 NLOS Cannon	4 Q64 Radar
8 Brigade Tactical UAV (AVN)	60 FTTS (CL III bulk / V)
12 SUAV (NLOS BN, Recon Toops	36 Organic Air Vehicle (Company)
	TBD Plt/Sqd Manportable Disposable Air Veh

UA Brigade Mission. The UA rapidly deploys anywhere in the world in 96 hours after liftoff as a fully integrated combined arms force to conduct combat operations as part of either a divisional Unit of Employment (UE) or a Joint Task Force. The UA conducts the full spectrum of military operations including deterrence, homeland security, stability operations, support operations, SSC to restore peace and stability, global war on terrorism, and is optimized for the offense in MCO. It is organizationally designed to conduct these operations in all terrain and in any weather conditions. It is optimized to: perform tactical maneuver and assaults fully integrated with fires to close with and destroy the enemy; have overmatching lethality at standoff, mobility, survivability and knowledge against threats in any operational environment; perform integrated mobile air-ground operations; develop the situation with external and organic assets; and synchronize the elements of combat power through a networked knowledge base linked to mission task and purpose.

The UA Brigade is able to conduct the following *core mission tasks*:

- Close with and destroy enemy forces to seize terrain and dominate the battlefield.
- Synchronize command and control (C2); intelligence, surveillance, and reconnaissance (ISR); maneuver, fires, protection, and sustainment.
- Develop the situation with external and organic ISR – Army and joint - to satisfy the combat information requirements to meet mission task and purpose of each echelon in the UA.
- Conduct offensive operations to fight and win battles and engagements.
- Conduct defend or delay operations.
- Prepare the battle space and protect the force with external and internal fires – Army and joint.
- Rapidly transition to changes in focus and mission or transition between tactical engagements or battles. Rapidly accept augmentation forces or establish relationships, supporting to supported.
- Build and sustain combat power of organic tactical forces.
- Execute up to a battalion-sized tactical air assault.
- Execute Stability Operations.
- Execute Support Operations.

The general-purpose framework of the UA developmental design addresses each of these core missions within a capabilities-based framework that seeks commonality of:

- Leadership
- System of systems
- Operating principles
- Organizational principles
- Interoperability (joint and multi-national)
- Operational and systems architectures

The UA design is revolutionary compared to today's brigade structures. This design is intended to meet initial fielding requirements for an FY08[1] first unit equipped (FUE), and for an FY 2010 initial operational capability. Manning and equipping data is provided to assist in developmental work.

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[1] [1] UA with threshold capabilities will be equipped by 2008, and capable of employment by 2010; a fully capable UA will be fielded and capable of employment by 2015.

For FUE and IOC, the objective is a manning range of 2145 to 2245 leaders and soldiers. At Full Operational Capability (FOC, estimated FY 2014-2018) the UA Brigade goal for leader and soldier strength is 2100 personnel. Even though this developmental construct has far fewer soldier strength than today's brigade combat teams, revolutionary qualities are accrued by its significant increase in capabilities and operational effectiveness.

It embodies:

- *Responsiveness* in time and distance and sustained momentum. To be truly responsive, it is *deployable* and capable of quickly and rapidly concentrating combat power in an operational area. It is transportable by C130 and comparable advanced airlift. It is able to deploy anywhere in the world in 96 hours after liftoff. It can arrive in coherent combined arms increments and fight upon arrival.

- Mental and physical *agility* to transition among the various types of operations, and from one tactical engagement or battle to the next based on advanced battle command on the move and a C4ISR network that builds and sustains superior knowledge. What is different is that this design is based on strengthening leader ability to not only understand the environment, but to act accordingly to seek advantage very aggressively to a much greater competency in combat skills. The UA provides a competency to develop the situation and know more about what's going on before, during and after tactical operations with strengthened capabilities to provide it to small units. It develops the situation out to 75 km. In the UA, leadership is empowered with access to external C4ISR distributed rapidly and effectively in terms meaningful to subordinates and absolutely responsive to changes in mission. Soldiers in the UA will work more effectively as a team and with each other rather than as individuals or in stove-piped systems is at the core of agility during tactical operations.[1]

- *Versatility* from the inherent capacity of this formation to dominate at any point of the spectrum of military operations based on tailorability and modularity. This brigade is very modular. It can be added to and taken away from depending on mission requirements. An essential characteristic of its design is its combined arms framework because the combat skills necessary require a level of unit cohesion in order to benefit from their effectiveness and employment.

- Assured *lethality* overmatch against any enemy line of sight (LOS), beyond line of sight (BLOS) and non line of sight (NLOS) fires in all conditions and environments. Key to the UA construct are lethal small units being at the center of its ability to achieve tactical decision. When the UA employs, every element in the formation will be capable of generating combat power and contributing to the fight. These involve fires not only internal but external – Army and joint, lethal and non-lethal. The prescription for lethality overmatch

is based on assured first round kill to include avenge kill capability; single round, multiple kills; precision; networked Army and joint fires; and mutual support.

- Vastly superior tactical *mobility* in the wide assortment of terrain variables. Rapid dash speed from cover to cover is key. This capability is not only a platform mobility characteristic but also involves understanding how to use terrain to mobility advantage, and how to deny that advantage to the enemy.

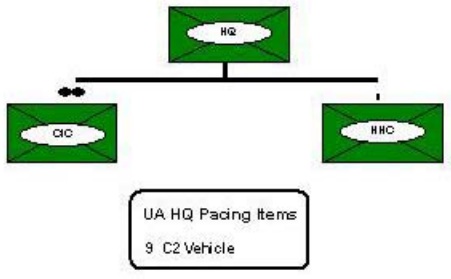
- *Survivability*. The UA takes advantage of technologies that provide maximum protection of the soldier on or off the platform by leveraging the best integration of low observability, active and passive systems and force protection. Survivability is also achieved by information superiority; using terrain to advantage for cover, concealment and mobility; employing superior dash speed from cover to cover; networked units that can disperse while maintaining mutual support in overwatch; lethality that assures first round kill, very effective suppressive and obscuration fires when closing with and assaulting the enemy; and leaders who are competent and capable to do the right thing at the right time and do it effectively.

- Enabled by networked, embedded, virtual, constructive or live *training*.

- *Sustainability.* Able to sustain combat operations with a much reduced logistics footprint and replenishment demand. The UA may operate for up to three days at a high operational intensity and up to seven days in a medium to low operational environment before it must be resupplied.

Design components consist of major unit and sub-unit data, to include missions and tasks:

3.1 UA BRIGADE HEADQUARTERS (HQ)



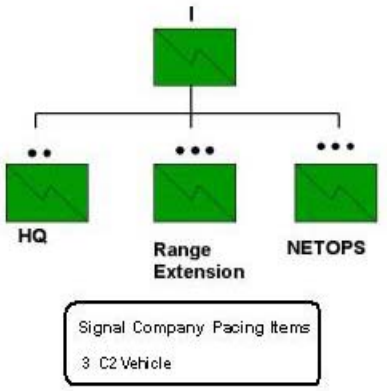
Mission. The UA HQ provides command and control (C2), information management and communications to enable the UA commander to plan and execute missions. It also provides administrative and logistical support to the headquarters section.[2]

UA Brigade Headquarters Tasks:

- Exercise command and control to exercise authority and direction.[3]
- Develop plans and operations.[4]
- Identify center of gravity through evaluating information and decision-making, systematically examining all aspects of the operation. [5]
- Synchronize command and control (C2); intelligence, surveillance, and reconnaissance (ISR); maneuver, fires, protection, and sustainment.
- Orchestrate development of the situation with external and organic ISR – Army and joint - to satisfy the combat information requirements to meet mission task and purpose of each echelon in the UA.
- Prepare the battle space and protects the force with external and internal fires – Army and joint.
- Direct purpose-based tactical maneuver.[6]
- Orchestrate tactical control of the airspace with air defenses and denial of air space through non-kinetic means.[7]
- Orchestrate sustainment support to provide arms, munitions, moving, re-supplying, human resources, financial, religious, legal, and health services.[8]

Design considerations: The brigade headquarters and headquarters company has the capability of employing two echelons of C2. The first echelon includes up to two very mobile command groups. The second is one operational mobile tactical command post. There is no rear CP. All command posts are 100% mobile and optimized to command and control tactical engagements; and synchronize ISR, fires, force protection, maneuver and logistics. The headquarters company contains a security force to not impose this requirement on subordinate maneuver units as well as limited sustainment and medics.

3.2 SIGNAL COMPANY

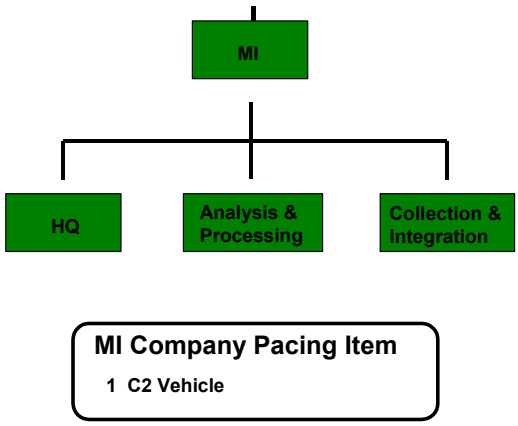


Signal Company Mission. The UA Signal Company plans, coordinates and directs signal assets to support the UA in achieving seamless communication architectures, an assured information management construct, and a reliable network gateway to external resources.[9]

Signal Company Tasks:

- Manage the entire communications frequency spectrum and systems architecture to include internal, external and allied or joint communications and transmissions beyond UA immediate/direct influence.
- Establish communications (digital, voice and visual) with required communications and control facilities and organizations.
- Provide communications network management, control and enforce circuit discipline on all forms of communications within the UA.
- Establish and manage the flow and display of information critical for command and control of the UA force and organic elements and associated units.

3.3 MI COMPANY:

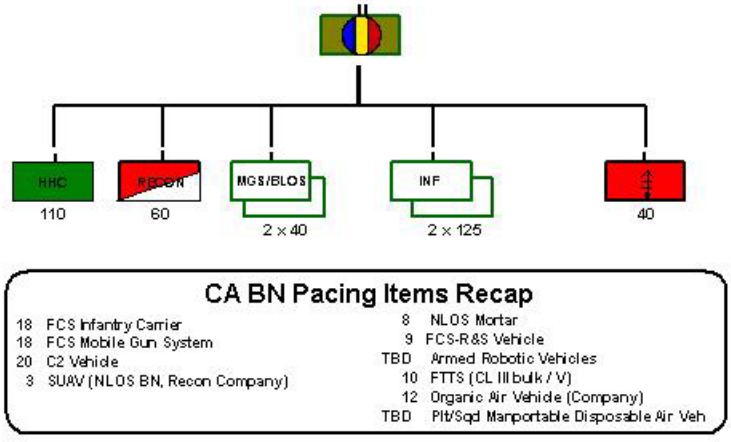


MI Company mission. The MI Company provides timely, relevant, accurate, and synchronized intelligence, emitter mapping, electronic attack, targeting and BDA support to the brigade during the planning and execution of multiple, simultaneous decisive actions by means of information and intelligence collection, analysis, processing, integration and dissemination.[10] The purpose of this organization is analysis, fusion and integration of ISR from external sources, organic UA R&S, combat battalion reconnaissance detachments, and troops in contact.

MI Company tasks:

- Provide ISR analysis and integration support to the brigade.
- Coordinate and execute tactical multi-disciplined intelligence operations.
- Conduct threat analysis, situation development, target development and Battle Damage Assessment (BDA).
- Provide ISR requirements management, multi-disciplined intelligence planning and de-confliction, and multi-sensor visualization to support the COP.
- Coordinate Signals Intelligence (SIGINT) and Electronic Warfare (EW) to enable the mapping of the electronic battlefield in support of tactical actions.
- Support the exploitation of tactical HUMINT.
- Perform Electronic Attack (EA) to include electromagnetic and directed energy to attack personnel, facilities with the intent to degrade, neutralize, or destroy the enemy's combat capability and actions taken to prevent the enemy's effective use of the electromagnetic spectrum.

3.4 COMBINED ARMS (CA) MANEUVER BATTALION.



CA Maneuver Battalion Mission. The CA Maneuver Battalion closes with the enemy by means of combined arms fire and maneuver and tactical assault to destroy the enemy, repel his assaults, or to seize terrain.[11] The CA Maneuver Battalion may operate for up to three days at a high operational intensity and up to seven days in a medium to low operational environment before it must be re-supplied.

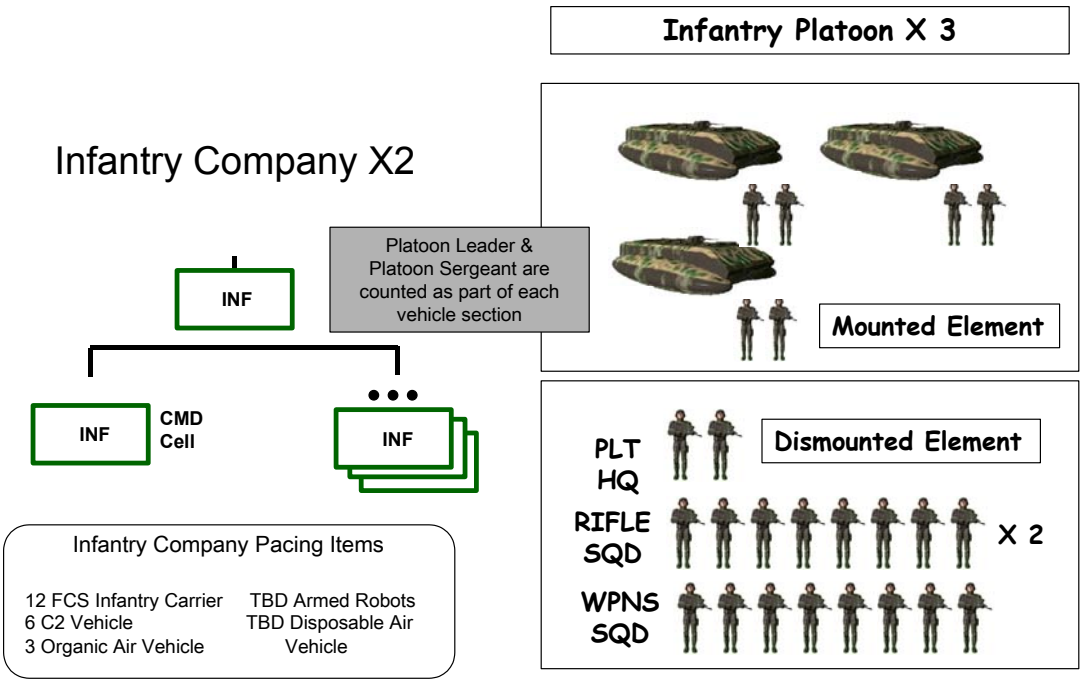
CA Maneuver Battalion Tasks:

- Execute movement before contact; fire and maneuver in contact and during tactical assaults to close with and destroy the enemy.[12]
- Perform battle command on the move.[13]
- Employ maneuver to complement destructive fires – Army and joint - at tactical standoff. During fire and maneuver and tactical assaults, employ organic and close support fires to enable maneuver.[14]
- Conduct air assault by dismounted elements and manned – unmanned mission equipment packages dismounted from platforms. These organizations can either air assault one dismounted company under the command and control of the UA brigade, or air assault of a battalion under the command and control of the division.[15]
- Transition rapidly to next engagement.
- Conduct offensive, defensive, stability and support operations against any threat in all terrain and weather.[16]

- Conduct reconnaissance and surveillance operations (zone, area, route).[17]
- Conduct security operations (counter-reconnaissance, screen and guard)[18]
- Breach or neutralize obstacles in-stride and from standoff when they cannot be bypassed.[19]
- Employ countermobility and survivability assets during defensive operations. Accomplish gap and obstacle crossing with augmentation.
- Integrate sustainment operations during offensive, defensive, stability and support operations.[20]

Design considerations: Optimized for offensive operations with companies attacking on multiple routes. Develops the situation before and during contact with enemy, during tactical assault, and during transitions, employing troops in contact, organic manned and unmanned ground and unmanned air ISR, and leveraging UA brigade aviation and UE ISR. Competent in teaming organic units for mutual support and cooperative engagement. Establishes and reestablishes sensor-shooter and teaming relationships to achieve mass at decisive point(s) and to accomplish tactical missions. Leadership must have a high level of competency in use of terrain, combined arms teaming, and achieving lethality and survivability overmatch.

3.5 INFANTRY COMPANY



Infantry Company Mission. The Combined Arms Company closes with the enemy by means of combined arms fire and maneuver and tactical assault to destroy or fix the enemy or to repel his assaults by fire, close combat and counter-attack.[21]

Infantry Company Tasks:

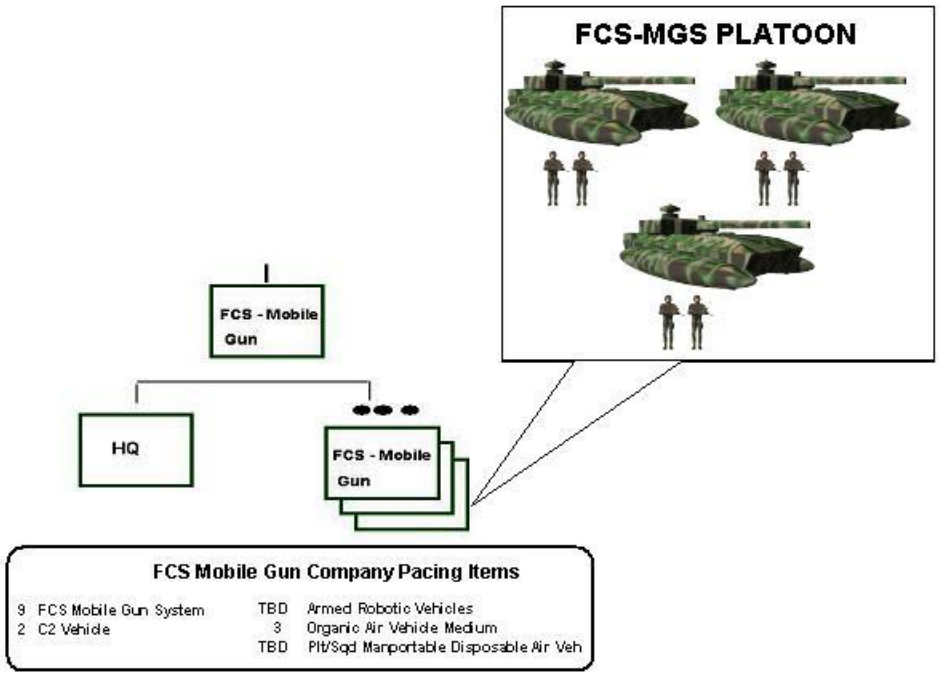
- Execute movement before contact; fire and maneuver in contact and during tactical assault to close with and destroy the enemy. [22]
- Provide mutual support in overwatch and control cooperative engagements.
- Conduct offensive, defensive, stability and support operations in all terrain and weather.[23]
- Conduct reconnaissance and surveillance operations in contact (zone, area, route).[24]
- Conduct security operations (counter-reconnaissance).[25]

Developmental capabilities. Further analysis will determine endstate mixes:

- Each rifle platoon has two each, seven to nine man, rifle squads and one each, six to nine man, weapons squad that can operate either split, in support of each rifle squad, or can mass to support the entire platoon.
- The company is organized to have inherent beyond line-of-sight (BLOS) fires. This system will be able to unplug a smaller module with BLOS and with LOS assault gun capability to provide direct support to dismounted operations. Modules will be mounted on either a robot or smaller troop carrier.
- The unit will have multi-purpose robots that may be armed to support airmobile operations.
- Each company has three Organic Air Vehicles (OAV's) mounted on unit vehicles
- Platform drivers are crew chiefs that perform operator, organizational and some DS maintenance functions.

Design considerations: Organic combined arms unit. Achieves lethal overmatch through teaming relationships with sister units, sensor – shooter relationships with fires and aviation. Applies knowledge of blue, red and terrain/weather to contribute to overmatch. Leadership must have a high level of leader competencies in use of terrain, combined arms teaming, and achieving lethal overmatch.

3.6 FCS MOBILE GUN SYSTEM COMPANY



FCS Mobile Gun System Company mission. To close with and destroy enemy forces, using fire and maneuver and tactical assault. Optimized for extended LOS with BLOS fires and employs CE and KE munitions to engage at standoff as well as provide rapid gun fires required for actions on contact or during tactical assaults. Attacks or defends under hostile fire and during limited visibility conditions (AUTL ART 1). This unit is optimized for high-speed mobile operations and has required lethality to kill T72 with enhanced reactive armor and active protective systems. Each FCS – mobile gun system is operated with a 2-man crew.

FCS Mobile Gun Company Tasks:

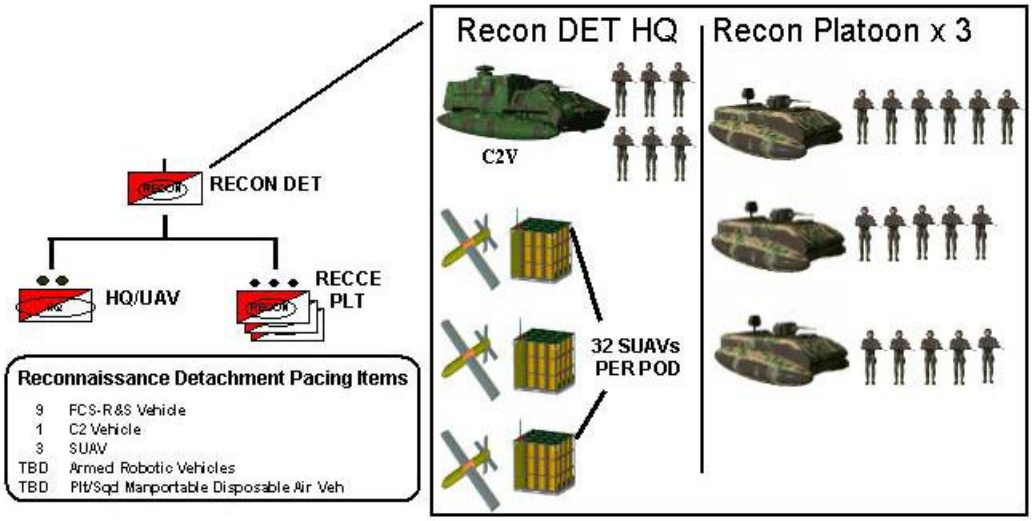
- Execute fire and maneuver before contact, in contact, and during tactical assault to close with and destroy the enemy.[26]
- Supports mutual support in overwatch and cooperative engagements.
- Conduct offensive, defensive, stability and support operations in all terrain and weather. [27]
- Conduct reconnaissance and surveillance operations (zone, area, route)[28]
- Conduct security operations (counter-reconnaissance).[29]

Developmental capabilities. Further analysis will determine endstate mixes:

- Each FCS MGS platoon has three MGS weapon platforms. The company can tailor its platoons to support infantry companies or can be employed to mass in support of mobile battalion operations.
- Each company has three Organic Air Vehicles (OAV's).
- Platform drivers are crew chiefs that perform operator, organizational and some DS maintenance functions.

Design considerations: Operates in combined arms with infantry companies. Achieves lethal overmatch through teaming relationships with sister units, sensor–shooter relationships with fires and aviation. Applies knowledge of blue, red and terrain/ weather to contribute to overmatch. Leadership must have a high level of leader competencies in use of terrain, combined arms teaming, and achieving lethal overmatch.

3.7 RECONNAISSANCE DETACHMENT



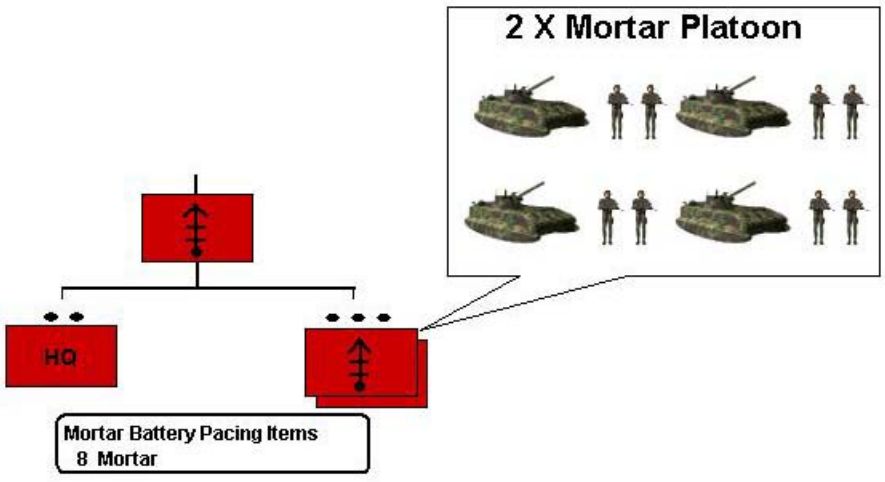
Reconnaissance Detachment, Combined Arms Battalion Mission. Gain information superiority over the enemy through active reconnaissance and surveillance operations. Gain and maintain contact with enemy forces, develop the situation and enable the situational awareness of the supported commander. Provide security through reconnaissance and surveillance. [30]

Reconnaissance Detachment Tasks:

- Conducts reconnaissance and surveillance (mounted and dismounted) operations to develop battlefield mobility and emplace observation. Capable of performing R&S on a minimum of three routes or nine NAIs (using manned and unmanned sensor capabilities).
- Provides sensor data from its organic sensors, both manned and unmanned, to produce combat information into the COP.
- Performs Target Acquisition tasks and calls for effects as part of normal operations.
- Finds and bypasses obstacles using its sapper element; possesses demolition expertise. Performs gap crossing with augmentation from divisional UE.
- Employ snipers for lethal precision fires in restricted / urban terrain.

Design considerations: Teams with combined arms and MGS companies and receives mobility support augmentation to achieve increased tempo for tactical movement. Establishes sensor to shooter relationships with fires systems to apply precision fires to destroy high payoff and most dangerous target sets (planned or opportunity). Teams with manned and unmanned aviation to accomplish mission. Requires a high degree of leader competence at skillful use of terrain and R&S techniques operating in advance of the combat battalion.

3.8 MORTAR BATTERY.



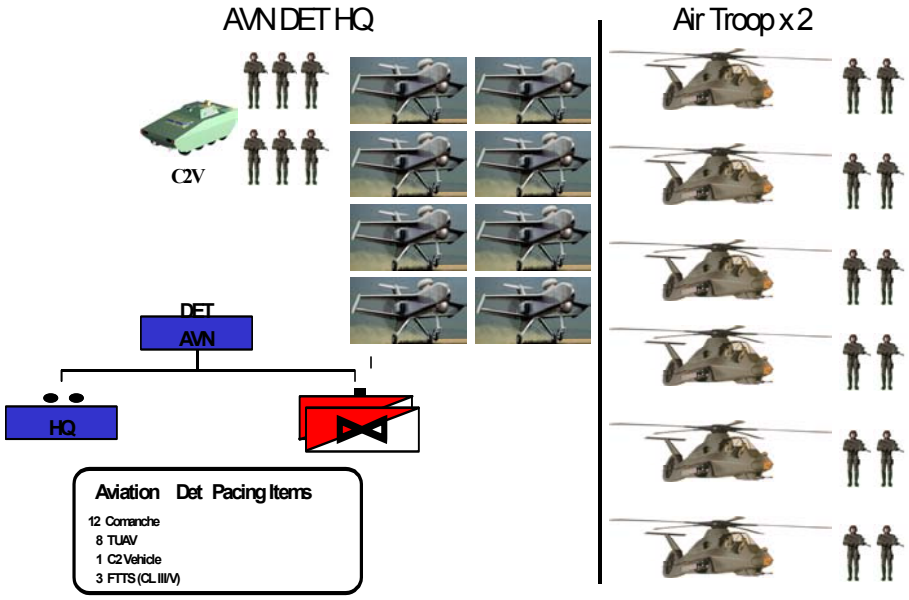
Mortar Battery Mission. The mortar battery provides fires in close support of tactical maneuver that include destructive fires, protective fires and special purpose fires.[31]

Mortar Battery Tasks:

- Employs precision fires to *destroy* high payoff and most dangerous targets.
- Provides area suppression in support of companies and platoons.
- Employs protective indirect fires (lethal and non-lethal) to suppress and obscure enemy forces in order to enable maneuver forces to close with and destroy enemy. Purpose of these fires is to empower the formation with freedom of maneuver during contact while minimizing casualties.
- Provides danger close and final protective fires.
- Links into the entire availability of networked fires – Army and joint. [32]
- Supports cooperative engagements.

Design considerations: The mortar battery consists of two platoons of four guns each. It provides precision-guided mortar capability with KE and CE lethality out to a range of 12 – 15 km. Operates normally as either two platoons or four sections to establish teaming relationships with recon troop elements and maneuver companies. The battery is highly flexible and agile in establishing sensor-shooter linkages. Organization provides highly responsive, reliable, timely, accurate and sustained rates of fire and rates of kill with 24-7 availability in all weather and terrain conditions at extended range (12-15km). Provides precision-guided fires to destroy, protective fires to suppress and obscure enemy, and illumination fires all in close support of maneuver units of the battalion. Platoon provides responsiveness with fires on-demand to engage complex and simultaneous target sets and can tailor for agility in tactical operations to execute pre-planned or opportunity engagements and scale effects to the nature of the target set and ROE.

3.9 AVIATION DETACHMENT



Aviation Detachment Mission. Perform reconnaissance and close support to maneuver.[33]

Aviation Detachment Tasks.

- Conduct reconnaissance to develop the situation before contact. Engages to destroy high payoff or most dangerous target sets during reconnaissance missions by employing external networked fires under brigade control to set conditions.
- Provide aviation in close support of maneuver, particularly when terrain is compartmented or restricted.

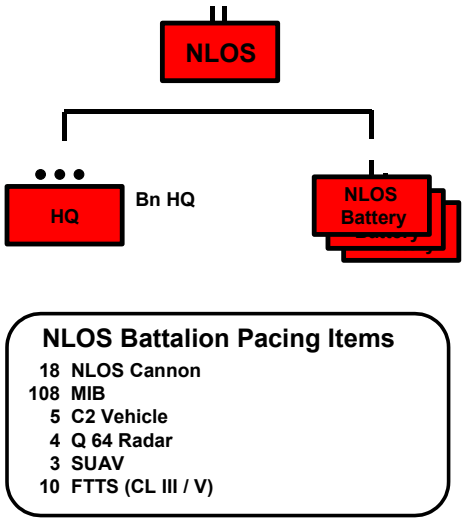
Developmental capabilities. Further analysis will determine endstate mixes:

- A major who is also a unit pilot probably commands this detachment.
- The detachment has a very small staff.
- Unit is crewed by 1.5 pilots per RAH.
- Each cavalry troop consists of six RAH per troop teamed with UAV's in order to have the ability for day and night cycle

- The detachment has a 4-point FARP with crew chief level of maintenance.
- The detachment has eight TUAVs (Shadow), in two sets.

Design considerations: This detachment provides a very robust reconnaissance capability with manned and unmanned aviation (man-in-the-loop) in support of the brigade mission. Key to success of UA operations is the ability to build and maintain a credible knowledge base to know more about what's going on and dominating the battlespace before, during and after tactical operations in terms of ISR with a strengthened ability for providing it to small units. This is particularly important given the dynamic action, reaction and counter action that occurs once forces are joined. R&S in this brigade has the mission task and purpose of enabling freedom of action, speed, mobility and mutual support of its combat and supporting elements. It is designed to empower lethal units with agility, responsiveness, and an ability to operate with greater competence, confidence and purpose. What is different is the embedded competency and capability to begin developing situational understanding at the outset with brigade level manned and unmanned air and ground reconnaissance, the recon detachments of the combat battalions, BLOS elements in overwatch linked to NAI /TAI, and troops in contact. These capabilities are layered with a strengthened linkage to sub elements to ensure coherency of mission and purpose. Organic R&S capabilities are fused with UE ISR. Purpose of this unit is to provide the brigade an organic ability to perform R&S at extended ranges in time and space leveraging air and ground, manned and unmanned competencies and capabilities. The detachment is highly capable of dominating the battlespace in terms of ISR and directing fires either in mobile strike roles to destroy high payoff targets or in close support of ground maneuver. Teaming relationships are established rapidly with combined arms units as needed per METT-T. Highly responsive across a dispersed brigade area of operation to accomplish mission, task and purpose.

3.10 NON-LINE OF SIGHT (NLOS) BATTALION



Non-Line of Sight (NLOS) Battalion Mission. The NLOS battalion coordinates and provides full spectrum Army and joint fires and effects in time, space, and purpose in support of the UA to enable the UA to conduct decisive operations.

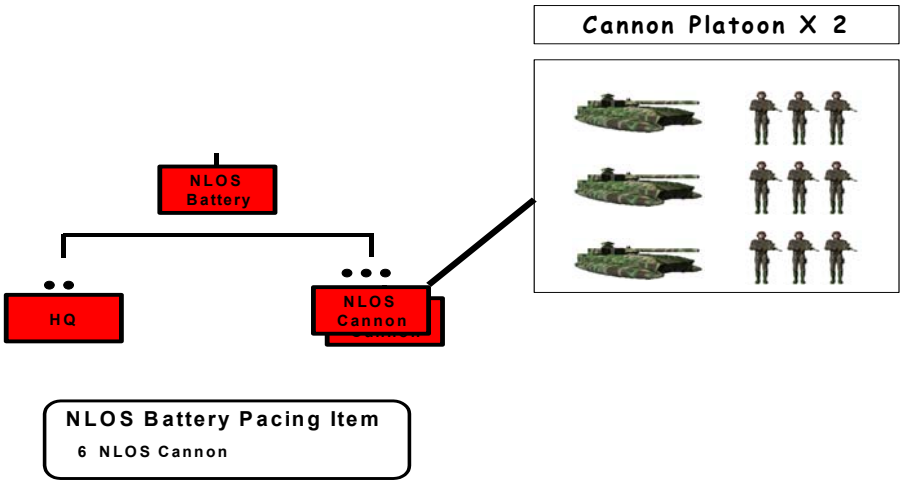
NLOS Battalion Tasks:

- Provides precise or area long-range destructive fires to deliver killing blows on enemy targets sets integrated with maneuver.
- Provides tactical fires (lethal and non-lethal) in close support of friendly forces in tactical combat by providing freedom of action while denying options to the enemy and allowing forces to close with and assault enemy. Provide fires fully integrated (not just complementary) with maneuver to: isolate or fix enemy forces; protect friendly forces by suppressing or obscuring enemy and denying his mobility; counter his indirect fires; and provide ultimate protection to maneuver formations through danger-close and final protective fires less than 600 meters of troops.[34]
- Performs artillery raids.
- Employs networked fires to access external HIMARS / MLRS, has direct access to joint fires, and can access missiles-in-a-box available throughout the area of operation.[35]
- Performs target acquisition with organic radar and external R&S manned and unmanned.

- Provides special purpose fires to include illumination, and future FASCAM such as RAPTOR and HORNET.

Design considerations: Capable of maneuver in all terrain/weather by platoons to support sensor-to-shooter teaming relationships with brigade R&S, recon troops and maneuver companies of the combined arms battalions. Able to mass fires without having to mass guns. Rapidly establishes and reestablishes sensor-shooter relationships with troops in contact, mobile strike aviation platforms, and unmanned sensors. Fire support is versatile by rapid teaming, task reorganization or tailorability to support maneuver that is adaptive to rapidly changing situations. Optimized for flexibility and responsiveness with fires on-demand to engage complex and simultaneous target sets. Can execute pre-planned or opportunity engagements and scale effects to the nature of the target set and RoE. Provides reliable, timely, accurate and sustained rates of fire and rates of kill with 24-7 availability in all weather and terrain conditions. Organic fires must be able to achieve intended effects at extended ranges of 30+ km to: ensure full coverage and deny sanctuary in the UA area of operation, provide mutual support and massed effects from dispersed locations, and to rapidly shift striking power across the battlefield and apply the full range of effects - from discrete to area - to assure mission endstate. Provides increased overmatching lethality from quicker response times; agility of fires in support of forces in contact; greater target location and weapon delivery accuracies; sustained rate of fire to get the job done quicker with smaller firing teams and less exposure as well as rapidly deliver discrete or volume fires; and greater munition effects to destroy, disintegrate or dislocate enemy forces; ability to shift fires and mission types very quickly (destructive, close support, and special purpose). Provides scaleable (lethal to non-lethal) capabilities. Battalion C2 skillfully integrates reinforcing fires means and effects.

3.11 NLOS BATTERY



NLOS Battery Mission. Provides destructive protective and special purpose fires.[36]

NLOS Battery Tasks:

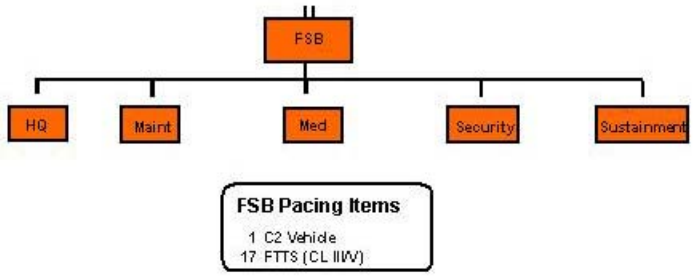
- Provides precise or area long-range destructive fires to deliver killing blows on enemy targets sets integrated with maneuver.
- Provides tactical fires (lethal and non-lethal) in close support of friendly forces in tactical combat by providing freedom of action while denying options to the enemy and allowing forces to close with and assault enemy. Provide fires fully integrated (not just complementary) with maneuver to: isolate or fix enemy forces; protect friendly forces by suppressing or obscuring enemy and denying his mobility; counter his indirect fires, and provide ultimate protection to maneuver formations through danger-close and final protective fires less than 600 meters of troops.[37]
- Performs artillery raids.
- Links into netted fires.[38]
- Supports cooperative engagement.

Developmental characteristics:

- Each battery has six cannons.
- Battery is capable of platoon operations.

- Cannon range is 30+ km and provides high angle fires to support tactical operations in compartmented defiles or urban terrain and mountainous conditions.

3.12 FORWARD SUPPORT BATTALION (FSB)



FSB mission. Provides sustainment, medical, field maintenance and transportation support to the UA Brigade; provides distribution management for selected sustainment.[39]

FSB Tasks:

- Responsible for the management of battlefield distribution for pulsed operations (including Army AVN and C130) in the UA.
- Optimized for resupply of Class III / V and some commodities.
- Provides medical triage with forward surgical team.
- Executes CSS for all assigned and attached units in the UA.
- Provides movement management.
- Provides field maintenance.
- Directs FSB operations and limited area security as assigned

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1 SWG VII, 18 June 2002

2 (Army Universal Task List (AUTL) Article (ART) 5.1, 5.2, 5.3, 5.4)

3 (AUTL ART 5.1, 5.2, 5.3, 5.4)

4 (AUTL ART 5.2)

5 (AUTL ART 5.2)

6 (AUTL ART 1.1,ART 5.3)

7 (AUTL ART 1.3.2.3.2, 6.1.4, 5.3.5.3)

8 (AUTL ART 4, ART 5)

[9] (ART 5.1.2, ART 5.1.2.1, ART 5.1.2.1, ART 5.1.2.2, ART 5.1.3.3)

[10] (ART 2.1, ART 2.2, ART 2.2.1.1, ART 2.2.2, ART 2.2.3, ART 2.3, ART 2.3.1, ART 2.3.4, ART 2.3.4.1, ART 2.3.4.2, ART 2.3.4.2.3, ART 2.4, ART 2.5, ART 3.3.2.2.1, ART 6.4, ART 6.2.1.1.1)

[11] SWG VII, 18 June 2002

[12] (SORC and AUTL ART 1.1.1 and 1.2)

[13] (SORC, C-5, C-16 thru 24)

[14] AUTL ART 2.3.4.2

[15] (AUTL ART 1.2.2.2.1)

[16] (FM 71-1, FM 71-2, FM 3-90)

[17] (AUTL ART 2.2.2 and 2.2.3)

[18] (AUTL ART 1.2.4.2, 2.2.3, and FM 3-90, Glossary B

[19] (FM 71-1 and SORC C-10)

[20] (SORC F-1 thru- 5)

[21] SWG VII, 18 June 2002

[22] (SORC and AUTL ART 1.1.1 and 1.2)

[23] (FM 71-1, FM 71-2, FM 3-90)

[24] (AUTL ART 2.2.2 and 2.2.3)

[25] (AUTL ART 2.2.3 and FM 3-90, Glossary B)

[26] (SORC and AUTL ART 1.1.1 and 1.2)

[27] (FM 71-1, FM 71-2, FM 3-90)

[28] (AUTL ART 2.2.2 and 2.2.3)

[29] (AUTL ART 2.2.3 and FM 3-90, Glossary B)

[30] (ART 1.2.1, ART 2.2.1, ART 2.2.12, ART 2.1.2, ART 5.3.5.1

[31] (SORC)

[32] (SORC, AUTL ART 5).

[33] (ART 1.1.2, 1.1.3, 1.2.2, 1.2.2.2.1)

[34] SWG VII, 18 June 2002

[35] (SORC, AUTL ART 5)

[36] (SORC)

[37] SWG VII, 18 June 2002

[38] (SORC, AUTL ART 5)

[39] (AUTL ART 4, 4.3.2, 4.3.2.1, 4.4.1, 4.6.1, 4.6.2)

CHAPTER 4 OPERATIONAL CONCEPT (HOW THE UA FIGHTS)

4.1 INTRODUCTION

The Unit of Action fights as no other tactical force. Commanders and leaders close with and destroy the enemy at times and places of their choosing, attacking when the enemy is most vulnerable and transitioning on the move.

This chapter describes the operational concept for the new way of fighting at the small unit level. First addressed is the underlying concept of the Quality of Firsts, around which UA tactics are formed. Next is a discussion of how the Unit of Action fights, described within a generic conceptual framework of: actions before forces are joined, actions during contact, tactical assault, and transitions followed by several illustrative offensive examples of tactical concepts. The chapter then addresses other concepts by battlefield functional area and then concludes with descriptions of specific tactical concepts for employment by the UA.

For further clarification and continued combat development work, there is a series of Unit of Action vignettes in ANNEX F to illustrate the tactical concepts and crosswalk to required capabilities in the context of brigade missions. They are: 1) the Unit of Action's entry into theater; 2) how it will fight in an urban environment (dismounted enabled by mounted); 3) how it will conduct offensive operations by ground to exploit and pursue a fleeing enemy (mounted enabled by dismounted); 4) how it will advance to attack an enemy center of gravity; 5) how it will conduct airmobile / air assault operations in restricted terrain; and 6) how it will conduct dismounted operations in a raid against a decisive point in a jungle environment. All of these vignettes demonstrate the power of integrated, mobile air-ground operations -- mounted and dismounted, manned with unmanned, empowered by leaders who are highly competent.

In chapter five, we capture the implications of this concept across doctrine, training, and leader development.

4.2 QUALITY OF FIRSTS

In the past, uncertainty about enemy and friendly conditions on the battlefield often dictated cautious movements to contact, expenditure of time and resources to develop the situation in contact, followed by initiation of

decisive action at times and places not necessarily of the commander's choosing. Objective Force capabilities turn this pattern on its ear, permitting future commanders to develop the situation before making contact, maneuver to positions of advantage largely out of contact, and, when ready, initiate decisive action with initiative, speed and agility. This is not about just providing advanced C4ISR to an organization -- that alone will not come close to developing the credible operational concepts and capabilities required in the UA. To be full spectrum capable against a very adaptive, learning enemy in all terrain conditions, the UA must operate with greater competencies, effectiveness and purpose to perform a wide range of missions and tasks. In the UA, we require greater empowerment in tactical operations at lower levels from: better battlefield preparation before engagement; better acquisition of enemy capabilities, disposition and intent; better knowledge of how to use terrain and weather to advantage; better shielding from enemy long-range fires; better mobility differential to maneuver better and more effectively than an adversary; better reliability of combat power at the point of decision; better fire control and distribution when conducting tactical engagements at small unit level; better awareness of mines, booby traps, and CBRN threats; and better availability of combat power for tactical operations. The UA will have the wherewithal to develop the situation before, during and after tactical operations affording combat leaders and soldiers situational dominance with revolutionary competencies and capabilities. UA fighting teams will execute a new tactical paradigm based on the quality of firsts—the capability of Objective Force units to ***see first, understand first, act first, and finish decisively***. [1]

To see first, leaders must see the battlespace in several ways. They must 'see' the parts, detecting, identifying, and tracking enemy forces while maintaining awareness of friendly elements. They must also 'see' the whole and have "cues" to ensure they know where people and forces are and where they should be. Additionally, UA leaders must 'see' the environment, including the terrain, weather, and population implications affecting operations. UA leaders must know, think and understand one, two and three steps ahead of the enemy because they understand their own capabilities, and understand the terrain, strengths and limitations of their adversary. By possessing the capability to see first, leaders must force the enemy to see last with a very effective counter-reconnaissance effort and by getting inside the enemy's decision cycle – and staying there.

To understand first, leaders must be capable of understanding the enemy's patterns in the common operational picture – the importance of terrain, operational concepts, schemes of maneuver, centers of gravity, decisive points, and vulnerabilities. They must then anticipate likely enemy actions, reactions, and counteractions. We seek leaders at all echelons that can receive information on enemy composition and disposition in terms of

indicators gained from ISR, assess what it means and know what to do about it. This is more than 'understanding' prior to contact and hammering an enemy with fires to achieve tactical decision. Enemies in the past have found ways to survive single solutions to tactical dilemmas. What's new is the UA's ability to empower 'understanding' before, during and after tactical engagements to apply fires, fully integrated with maneuver, to get tactical decision. Situational understanding allows leaders to focus on profitable fights, to decide to act when and where it gains the best tactical advantages for starting and finishing engagements. Beyond understanding first, leaders must simultaneously force the enemy to understand last, using techniques such as counter-reconnaissance, deception, pattern avoidance, and irregular battlefield geometry.

Seeing and understanding—a continuous, unending process—ensures we can act first. Small unit leaders have to be skilled at the concepts of fighting – movement techniques, mutual support, fire and maneuver, control and distribution of fires, integrating combat power, assault, and transition; taking cues when out of or in position, and executing with speed, agility and initiative. Then, they can – and do – act first.

Finally, Unit of Action tactical leaders finish decisively by controlling the tempo of operations, denying the enemy freedom of action, and destroying the enemy's ability to fight.

The brigade is optimized for closing with and destroying enemy when forces are joined by: 1) bounding overwatch under contact, 2) fires at standoff and movement not in contact, 3) fire and maneuver, 4) and tactical assault against all threats in any terrain and weather condition. Closing with and destroying includes any form of lethality to engage an enemy with LOS, BLOS and NLOS fires when under observation by an adversary and in contact. Finishing decisively also requires the capability to rapidly exploit success. For example, the UA is expected to follow through the assault without tactical pause to complete the enemy's destruction by exploitation and pursuit.[2]

4.3 HOW TO FIGHT FRAMEWORK

Ultimately, all Objective Force decisive operations are based on tactical success in close combat, the capability to seize and control key terrain and to close with and destroy enemy forces. In this sense, close combat actions are the fundamental building blocks for operational success and strategic victory. UAs execute decisive combat operations by denying the enemy freedom of action and destroying him through a series of rapid, violent actions. Future engagements will be characterized by new tactical principles based on development of the situation in and out of contact and the balanced

combination of standoff fires, skillful maneuver, and tactical assault to achieve simultaneous decisions at multiple locations. UAs direct the continuous integration of powerful small tactical units, moving along multiple, non-contiguous lines of operation to objective areas that are force-oriented, while engaging the adversary with organic and external, overmatching and precise supporting fires. The engagement culminates in enemy capitulation at standoff or tactical assault to destroy enemy forces. This chapter will describe how the UA is going to fight using the conceptual framework of *entry operations, actions before forces are joined, actions during contact, the tactical assault, and transitions*.

4.3.1 Entry Operations

Organized into more deployable, smaller, but more capable formations, the Objective Force will exploit all military and commercial strategic lift to arrive in theater ready to fight, fully synchronized with other elements of the joint force. Advanced airlift and high speed, shallow draft sealift capabilities that reduce reliance on improved airfields and seaports and permit multiple entry points, even within austere theaters, afford a strategic advantage to the Nation by increasing operational options. The deployment process for the Objective Force is based on three primary tenets - speed, precision, and knowledge. Speed is contingent on the combination of rapid and flexible time-phased force deployment data (TPFDD) development, rapid loading, fast air and sealift, throughput, and a comprehensive deployment command and control suite with applications that direct the deployment. The ability to build the force, control the flow, and deliver coherent combined arms units intact allows the geographic combatant commander to generate immediate combat power. Precision is contingent upon accurate, complete, and timely deployment information assured through persistent space-based communications. It is also contingent upon loading techniques (stowing for unit discharge), packaging and inter modal delivery platforms for accompanying sustainment and unit equipment. The Objective Force's ability to deploy rapidly on strategic and operational lift platforms, coupled with rapid discharge of ready to fight units already outside of the continental United States possessing greatly improved tactical mobility, enables operational maneuver from strategic distance.

This operational maneuver from strategic distances constitutes a fundamental change in traditional approaches to deploying forces to theaters of operation. The traditional model optimizes the capacity of strategic transportation. Today, unit personnel and equipment must be re-assembled at the port of debarkation in the theater of operations. However, this model must change in order to overcome an aggressor's anti-access capabilities. The enemy will make every effort to deny US forces initial entry. Therefore, entry

into areas of operations must be enabled without reliance on conventional Aerial Ports of Debarkation (APODs) and Sea Ports of Debarkation (SPODs) where denial efforts will be focused. This approach also means that strategic transportation must be 'operationalized' to ensure that unit elements arrive ready to fight. To be truly responsive, Army forces must be deployable and capable of quickly and rapidly concentrating combat power in an operational area. The Army goal is to deploy a brigade combat team ready to fight on arrival, anywhere in the world in 96 hours after liftoff, a division on the ground in 120 hours, and five divisions in theater in 30 days.

At UA brigade level, this new approach to entry operations means that the UA trains intensively at its home station based on the Joint Strategic Capabilities Plan (JSCP) and mission essential task list (METL) tasks. Upon alert, the UA begins to deploy within hours and closes with the joint area (JOA) of operations within 96 hours of the departure of its first elements from the home-station air port of embarkation. The UA arrives in the joint operational area by insertion into small airfields or other landing sites that are not easily predictable by the enemy to overcome his access denial strategy. Upon arrival, sub units of the UA are ready to fight as coherent combined arms teams with mission support enablers; with all crews, squads, and initial sustainment having deployed on the same sorties as their respective FCS platforms. The UAs entry process is dynamic and designed to defeat enemy anti-access strategies. Therefore, the UA enters the JOA at multiple tactical points of entry.

As described in the Entry Operations vignette in Annex F, the UA deploys into the JOA after certain joint conditions have been established. This normally includes the prior introduction of Special Operations Forces, the establishment of an infosphere[1] that gives the UA situational awareness throughout the deployment process, and the JTF Commander's actions to quickly dismantle the enemy system of systems. These entry procedures enable the UA commander to begin to fight his unit while it is enroute to the area of operations.

4.3.2 Actions Before Forces Are Joined

Units of Action must **develop the situation out of contact**; **decide when and where to fight**, **set conditions** to ensure tactical success, and **maneuver to a position of advantage**. What endures before contact is combined efforts by all echelons to degrade threat C4ISR; the need to leverage higher headquarters intelligence preparation of the battlefield; the need to shape and isolate the battlespace and shield or protect the force with

[1] (layered, integrated network of information and communications capabilities)

maneuver, fires or obstacles in depth; the need to fuse ISR information into a common operational picture tailored to unit mission, task and purpose; the need to employ manned and unmanned air, ground, and space based reconnaissance and surveillance (R&S); the need to neutralize long range non line of sight fires, and tactically tailor or re-task for each mission.

What changes is networked ISR – manned and unmanned air and ground ISR and remotely delivered sensors – organic at all UA echelons, linked to all shooters. Timely, actionable external information, including accurate information about terrain and weather, is disseminated for use. Soldiers and leaders will be empowered with accurate information about terrain and weather, and will receive accurate, timely up-to-date digital map information of the battlefield. Units will be able to, receive and disseminate terrain and weather information immediately throughout the AO even while en route to gain the 'home court advantage' at all times. Obstacle and booby trap detection and neutralization at standoff enhance tactical mobility and operational momentum in all kinds of complex and urban terrain. Units maintain overwatch during tactical movement and at standoff ranges, achieving a higher degree of mutual support between tactical units. Commanders practice a continuous focused IPB and estimate process. The result is increased freedom of action that is preserved longer, and a greater ability to cause the enemy to see and understand last, or wrongly.

The brigade assigns missions, shapes actions beyond and between battalion engagements, integrates external intelligence, organic ISR and long-range fires, fills in gaps in combat battalion capabilities, and sets conditions for tactical success. A tactical infosphere enables overlapping information activities to push actionable combat information from external sensors – satellite, national and joint, unmanned aerial vehicles, and other means in theater onto a highly efficient shared digital network that must support prompt combat action, rapid decision-making, or further analysis by tactical units. Participating in the common network, the brigade and its sub units meet their own more discrete and focused information requirements with organic R&S and from troops in contact (the results of which they add to the network). Quality and quantity of information provided by the infosphere will increase during combat operations, both as additional 'eyes' are added to the ISR process and as the enemy is forced to respond to various modes of attack. All elements contribute to the counter-reconnaissance fight. Commanders direct purpose-based outcomes through mission orders, maneuver units over wider areas, and empower units with initiative to exploit the use of terrain to advantage, bypass least dangerous enemy positions and obstacles, when possible and achieve positions of advantage for delivery of fires or executing assaults. The brigade and battalions must have the ability to continue developing the situation after contact. They must have a *counter surprise* quality and the ability to maintain freedom of action,

speed, mobility and mutual support. R&S is carefully designed into the UA to empower lethal units that are very agile, responsive and can operate with greater competence, confidence and purpose. What is different in this phase is an embedded competency and capability to begin working situational understanding at the outset with brigade-level manned and unmanned air and ground reconnaissance, the recon detachments of the combat battalions, and BLOS elements in over watch linked to NAI / TAI. These capabilities are layered with a strengthened linkage to sub elements to ensure coherency of unit mission and purpose.

While the infosphere builds, the combat battalion commander, using a cycle for rapid decision-making more like troop leading procedures (FM 7-8) than the military decision-making process (FM 101-5), organizes his small fighting units while on the move and builds his plan collaboratively with the brigade and battalion commanders. The brigade commander will isolate and shape the battlefield, physically with maneuver, fires and obstacles, and informationally by denying the enemy observation. Manned and unmanned aerial platforms add a lethal third-dimensional sensor and shooter capability. The battalion maneuvers into position, often directly from a previous engagement, and rapidly receives or builds the necessary situational understanding to execute precision maneuver and decisive combat.

4.3.3 Actions During Contact.

Units of Action initiate decisive combat at the time and place of their choosing. They continue to develop the situation in contact to retain situational dominance, and integrate maneuver, fires, ISR, and the network. Forms of maneuver, tactical formations and movement techniques endure but tactics, techniques and procedures for implementing them will change. Combat battalions perform R&S with their reconnaissance detachments, as well as troops in contact, to retain situational understanding in terms very meaningful to subordinates. The UA has a strengthened ability to not only understand the environment, but to act accordingly to seek advantage very aggressively with a competency in combat skills – individual and collective. This organization has the advantage of being able to apply organic and external lethality combined with soldiers who operate more effectively to achieve tactical decision. *Precise* long-range destructive fires – assured first round kill - from standoff to deliver killing blows on enemy target sets, integrated with maneuver, are a lethal capability unique to the UA. Also key, are close support fires to suppress, obscure, isolate and fix enemy to protect forces and assure freedom of maneuver while in contact that require volume and duration effects.

Many actions during contact change. The inherent combined arms structure of the maneuver UA enables decisive full spectrum operations

against any threat in all terrain and in all weather conditions, using organic and external fires in support of all combinations of mounted and dismounted engagement. Maneuver is different in terms of depth, time and space. Tactical movement, enabled by improved situational understanding, reduces chance contact and minimizes the requirement for the traditional movement to contact. Responsiveness and extended ranges of weapon systems enable far superior mutual support between decentralized, dispersed tactical units. Hasty attacks are conducted with the situational awareness formerly only available with deliberate attacks. The UA can combine tactical maneuver with commitment of air-assault capable subordinate units to achieve decisive combinations. In the past, the standard for a deliberate attack was 80% fidelity of information on the enemy. However, that information was general purpose in nature and not targetable. In the UA, networked units have a high degree of situational understanding that is truly actionable for precision fires and maneuver to set favorable conditions for tactical assaults. Units now provide overwatch with sensing and fires at standoff ranges to better cover tactical movement, maneuver and assaults, which again, facilitates increased freedom of action. Small unit leaders employ more types of weapons and operate over greater distances, with greater dispersion to achieve assured, on demand, overmatching fires. Lethal overmatch is achieved by tightly integrating ISR, fires and maneuver to fire first with assured first round kill.

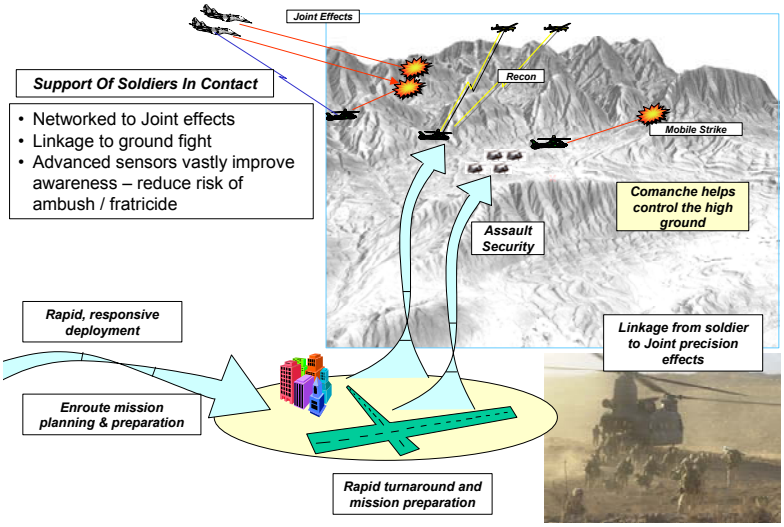
After contact, both brigade and battalions continue to develop the situation. The brigade commander focuses on high payoff targets (identified by understanding the enemy pattern of operations) that can change the correlation of forces or battlefield geometry at a single blow and thus create opportunity. This enables subordinate commanders to go after targets identified as most dangerous to mitigate operational risk. With full freedom of action, empowered by networked situational understanding, the battalion is able to aggressively choose the time and location for close combat. Small units and battalions apply a quality of fire control and distribution to line of sight (LOS), beyond line of sight (BLOS) and non line of sight (NLOS) fires to fully integrate fires with maneuver; achieve overmatching lethality from quicker response times, agility of fires in support of forces in contact; greater target location and weapon delivery accuracies; and get the job done quicker with smaller firing teams, less exposure and greater effects to destroy, disintegrate or dislocate enemy forces. UA fire control and distribution further assures responsiveness with fires on-demand to engage complex and simultaneous target sets executed as pre-planned or opportunity engagements. Networked fires enable detection, delivery, and assessment in near real-time with every vehicle providing sensors. To this end, advanced fire control and distribution systems refine tactical and technical fire direction, facilitate clearance of fires, and sort out high payoff and most dangerous targets rapidly in depth. R&S platforms, both air and ground, also

add an accurate and immediate multi-dimensional sensor and shooter capability to the developing fight.

While making, maintaining, breaking and reestablishing contact, the Unit of Action continually improves its knowledge of the terrain, enemy and friendly situation. Layered sensors at all levels reveal high payoff and most dangerous targets. The Unit of Action denies the enemy the ability to see and understand, by stripping away his sensors and obscuring his vision, thus presenting him with multiple unanticipated simultaneous dilemmas.

Units of Action seek standoff in sensing and in LOS, BLOS and NLOS fires. Leaders will continuously seek that "middle ground" between being too far from the enemy to support the assault with standoff fires and so close as to become vulnerable to his direct fire systems. Mutual support between small units and external sources underpins dispersed small unit tactics and facilitates engagements at standoff. Seeing and understanding battle damage assessment (BDA) is critical during the engagement as leaders must quickly transition to subsequent actions and the assault while maintaining relentless pressure on the enemy. Additionally, effective BDA ensures efficient expenditure of limited munitions – thereby reducing requirements for increased levels of supply and associated transport.

COMANCHE Air –ground teaming



Responsiveness and extended ranges of weapon systems enable far superior mutual support between decentralized, dispersed tactical units. The Unit of Action brigade can combine ground maneuver with commitment of Comanche reconnaissance and close support to achieve decisive results. The Comanche operates with UAV's as manned unmanned (MUM) teams to provide a man in the loop to integrate, fuse information on-scene and synchronize the combat actions of the combined arms air-ground team.

Endstate for combat units in this framework is maneuver to positions of advantage to dislocate enemy and posture for rapid transition to tactical assault if needed. Maneuver also may complement fires – which are precise or area long-range fires at standoff to deliver killing blows on enemy target

sets to disintegrated, dislocate or destroy enemy. Movement techniques and fire and maneuver employ BLOS in overwatch. There may be situations when the complete enemy picture is not possible and contact is imminent. If there is no bypass, more deliberate movement techniques can be employed that echelon ISR, fires, and maneuver through the danger area – to counter 'keyhole' shots. Small units must be designed to successfully perform actions on contact in these situations.

4.3.4 Tactical Assault

The Unit of Action is composed of small unit fighting teams of teams that destroy and disintegrate the enemy decisively through assault, supported by high situational understanding, and assured overmatch in lethality and survivability. Although the enemy is dispersed, he focuses on creating mass, moving fires and hugging our forces. As a result, tactical engagements may involve a larger area in time and space than we are used to.

The UA commander initiates tactical assault with agility and high tempo. Discrete combat information (terrain, weather, friendly, enemy, and noncombatant) drives ISR to a higher fidelity prior to decisive commitment in order to support small unit task and purpose and to synchronize assaults. Sixty to eighty percent fidelity remains the required threshold of information to enable an assaulting force to:

- Attack enemy weakness
- Allow the UA to discern and attack decisive points while forgoing unnecessary action
- Bypass or reduce final protective obstacles in stride
- See and counter enemy reactions to our assault
- Discern and strike the most dangerous targets; to confirm battle damage assessments
- Perform superior combat identification of friend and foe.

ISR is not just about line of sight sensing; it must include a capability to see enemy elements through walls and thick foliage, in buildings, caves, or subterranean infrastructure.

The UA shapes the battlespace and destroys high payoff targets while maneuvering to assault with precise, dominant maneuver focused on specific enemy targets. As a result, combat information must be targetable. UA units fully synchronize ISR, fires, dismounted and mounted maneuver before contact and throughout the assault – all done on the move.

Lethal overmatch in line of sight (LOS), non-line of sight (NLOS), and beyond line of sight (BLOS) assaulting fires occurs through advanced fire control and distribution in time and space over the objective area. Networked fires allow leaders of small units and teams of teams to solve the challenges of fire control and distribution by discerning most dangerous targets, often while moving, and directing the most appropriate fires to destroy them. Lethal, rapid fires capability is critical in LOS engagements to develop the situation in contact, actions on contact, fire and maneuver, and during the assault. Units mass effects of all weapon systems by combining LOS, NLOS and BLOS fires in overwatch and mutual support while on the move, without reliance on specific movement techniques, achieving simultaneity of support-by-fire and assault tasks.

Lethal and non-lethal fires prepare the objective, isolate it from enemy reinforcement, and emplace countermobility at standoff. These fires apply quality target location (facilitated by the situational understanding provided by the common operational picture) and precise attack methods and munitions. Loitering attack munitions, and manned and unmanned air and ground R&S all help identify targets before attack and provide battle damage assessments (BDA) during and after the attack. Close support fires must also effectively suppress, obscure, or illuminate on behalf of units directed to close with and destroy enemy to assure their freedom of maneuver and protection in contact. These require volume and duration effects.

Lethality and survivability overmatch are gained by: firing first with assured first-round kill; using terrain to advantage for cover, concealment and mobility; dash speed moving from cover to cover; ability to disperse while maintaining mutual support in overwatch; receiving responsive and effective suppression and obscuration fires integrated with maneuver; reduced system and unit signature, active protective systems and an 'avenge' kill capability. Obscuration fires can blind the enemy and ensure we can see and act first in the assault. The UA also detects and bypasses or neutralizes obstacles and booby traps at standoff. Finally, the contribution of leaders who have the competency to do the right thing effectively at the right time cannot be understated.

The Unit of Action maneuvers with speed and accuracy on an axis of attack to a position of advantage at the enemy's flank and rear to dislocate him or launch an assault to destroy him. The UA avoids fire sacks. Rather, its lethality at extended range allows assaults to work from two directions as the baseline. Assault and responsive fires in mutual support, with appropriate triggers to safeguard freedom of action and decision making, enable initiative of leaders and soldiers. The enemy either dislocates or he is destroyed. Battalions do not break contact, but finish tactical engagements and transition quickly to subsequent missions without significant pause.

4.3.5 Transitions

"Transitions – going from offense to defense and back again, projecting power through airheads and beachheads, transitioning from peacekeeping to warfighting and back again – sap operational momentum. Mastering transitions is key to winning decisively. Forces that can do so provide strategic flexibility to the National Command Authorities, who need as many options as possible in a crisis. The Army, with the versatility and agility of its formations, has historically provided those options and the Objective Force will continue to do so in the evolving operational environment of tomorrow."[2]

The relatively narrow functional alignment of current forces demands operational and mission transitions. Operational pauses and transitions are required as the force shifts from stability operations to smaller scale contingencies (SSC) to major combat operations (MCO) operations, between types of operations (offense, defense, etc.), within a mission (river crossings, for example), or to weight the main effort. These requirements for transition provide an opponent with time and space to recover and seek predictable enemy seams and vulnerabilities that can be exploited. The objective force Unit of Action, as a general-purpose force, will eliminate these dangerous transition areas.

There will be little discernible break between decisive tactical engagement, tactical exploitation and pursuit, and reconstitution or mission staging for the next mission. In fact, within a combat battalion, the next mission will often be a continuation of its current fight—an anticipated branch or sequel. Because of the inherent mobility of the UA, its ability to keep situational understanding during and after a tactical operation, and its versatility and agility; the UA can transition immediately to exploitation or pursuit to engage the enemy on our terms. This highly mobile formation can attack from the move in a series of deliberate attacks under hasty conditions. This is a significant difference from today's force. Today's brigades are not easily able to transition quickly from a coordinated attack to exploitation. Fires are not responsive to the fluidity of a dynamic, adaptive battlefield framework.

When more preparation is required (substantial mission change, fulfilling sustainment requirements, rest, etc.), mission staging is the way the combat battalion and its parent unit could conduct transition while maintaining pressure on the enemy. It could include a limited action to refit or restore critical supplies or capabilities—such as today's refuel-on-the-move (ROM) operation. Mission staging could likewise be an intense, time-sensitive operation which includes all preparations for an upcoming

[2] United States Army White Paper, "Concepts for the Objective Force"

mission—planning, troop leading, rehearsals, training (often virtual), resupply of mission load and unit reconfiguration.

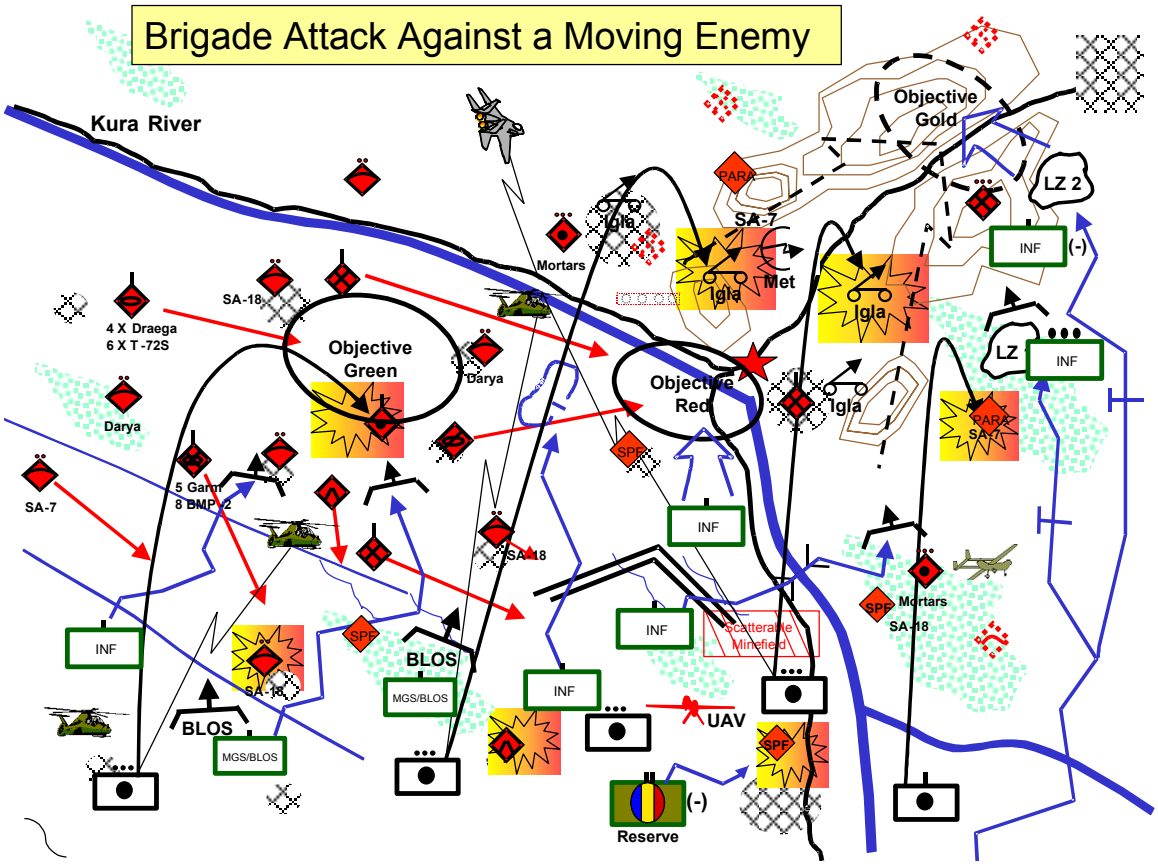
The combat battalion's tactical pattern of operation is a cycle within a larger cyclical operational pattern. These cycles enable forces at all levels to cycle in and out of combat. This allows fresh forces to maintain relentless and continuous pressure on the enemy. Mission staging is the approach to rapidly executing necessary mission and sustainment transitions that are a part of all operations. Initial mission staging coincides with initial operational-level preparations, but thereafter the tactical cycle turns more rapidly. Once the battle commences, the tempo of operations produces a cascade of increasingly intense engagements until the enemy is destroyed, or the coherence of its organizations and operations becomes dislocated or disintegrates.

4.4 ILLUSTRATIONS OF OFFENSIVE OPERATIONS

The section that follows consists of a brigade and battalion offensive example in mixed terrain and a brigade and battalion example in urban terrain. The narratives of these examples amplify the concept framework described earlier and introduce tactical concepts appropriate for those echelons and situations. Enabling tactical concepts will also be summarized at the end of the chapter.

4.4.1 OPEN / ROLLING

4.4.1.1 Brigade Attack Open/Rolling Situations



Enemy. Tactical center of gravity for this phase of the operation is determined to be two batteries of Igla 300mm rocket launchers located just north of the Kura River. Each launcher has up to 48 rockets in local cache. With a range of 100km and effects that range from kinetic to possible chemical – the enemy has effectively used these systems to interdict APODs and other high value targets in the area of operation. JTF has directed they be destroyed immediately to assure access into the region and to maintain operational momentum. Elements of enemy mechanized forces are quickly moving east from dispersed locations to interdict UA movement, force premature commitment of its combat battalions, and prevent the UA from crossing the Kura River, finding and destroying the Iglas. This force is equipped with some Draega tanks that are equipped with enhanced reactive armor and active protection systems, and are armed with large caliber guns that can effectively engage at ranges of 3-5 km Line of Sight (LOS) and 12km Beyond Line of Sight (BLOS). Antitank guided missiles are also able to engage at 5km LOS and 12km BLOS. A reduced infantry company organized

with sappers defends the Kura River Bridge and is preparing it before the UA can influence action. Enemy knowledge base accrues from his 'home court' familiarity with terrain, and reconnaissance from special purpose and organic forces, irregulars and local nationals sympathetic to overthrowing the Azeri regime.

Terrain. South of the Kura River, the delta plain is flat and visibility can extend to 7km. However, there are many cross-compartments formed by irrigation canals, dikes and berms that cause intervisibility problems and will afford cover and concealment to enemy movement and positioning. North of the river, terrain is more rolling with hills and vegetation providing masking, cover and concealment options. Average engagement ranges are 2km. There are numerous villages and cities that serve as choke points and provide masking for enemy most valuable assets.

Concept of Operation. The Unit of Action brigade concluded a battle to destroy defending enemy forces and quickly transitioned into an exploitation operation. This UA has been assigned the mission to attack to find, fix and destroy all Igla launchers, secure available Kura River crossing sites for opening Lines of Communication needed to sustain the force, and continue the attack north towards Baku. The brigade designates one combat battalion as main effort (ME) with the mission of attacking to seize the bridge and fording sites across the river and attacking to destroy Igla launchers. One combat battalion is designated as supporting effort with the mission of attacking by fire enemy mechanized forces to assure the ME retains the freedom of maneuver it requires to accomplish its mission. Brigade will also air assault one dismounted infantry company from its reserve battalion to seize the defile north of the river to block escape routes the launchers may use and to facilitate UA offensive operations towards Baku 80km away. The brigade reserve follows the ME and prepares to assume missions of either the main or supporting effort.

Tactical concepts for this operation are:

Develop the situation.

The UA must have the competency to develop the situation using organic and external means to the fidelity required. Key to success of this operation is the ability to build and maintain a credible knowledge base to know more about what's going on and dominating the battlespace before, during and after tactical operations in terms of ISR with a strengthened ability for providing it to small units. This is particularly important given the dynamic action, reaction and counter action that occurs once forces are joined. This is much more than knowing more about an opponent and beating him up before contact. At the core of the construct is that when in contact, we can dominate the battlespace with even more capability, operate

more harmonious as a unit, and be able to employ more effectiveness internal and external.

The R&S design of the UA is about reconciling the tough business of combat – if an adversary comes within our envelope, we're going to bring to bear lethal fires in a very effective way, maneuver in a very effective way at will, and act with initiative. R&S of this brigade is all about freedom of action, speed, mobility and mutual support. It's about empowering lethal units that are very agile, responsive and can operate with greater competence, confidence and purpose. We are looking for efficiency that 'if you get in a fight with this unit, you're going to die and you are not going to escape.'

What is different is the imbedded competency and capability to begin working situational understanding at the outset with brigade level manned and unmanned air and ground reconnaissance, the recon detachments of the combat battalions, BLOS elements in overwatch linked to NAI /TAI, and 'troops in contact'. These capabilities are layered with a strengthened linkage to sub elements to ensure coherency of unit mission purpose. But this is not all from internal means. The divisional UE provides key information to the UA so that it can enter contact at advantage. UA leadership is provided access to external ISR distributed rapidly with a greater effectiveness in terms of what is meaningful to subordinates and can be changed as missions change.

UA commanders are enabled by first class communications that are networked and MI analysis, which take us to a new level of situational awareness when forces are joined in combat. R&S must deliver useful information of the key variables of this environment – enemy composition, disposition and intent; knowledge about terrain, how to use it to advantage and deny its use to the enemy; and implications of weather on tactical operations.

In this operation, the window of opportunity to achieve endstate is rapidly closing with the advance of mechanized elements to protect the center of gravity. The brigade R&S effort has these tasks and purposes: 1) understand the terrain, how to use it to advantage and how to best deny its use to the enemy; 2) gain precision acquisition to engage most dangerous enemy target sets prior to and during contact with destructive fires; 3) observe named areas of interest on river crossing sites to destroy enemy sappers, rocket launchers and long-range fires; 4) gain information to enable the ME with mobility and initiative needed to rapidly seize river crossings and destroy launchers; 5) facilitate company air assault to seize the defile and linkup with the ME; and 6) answer CCIR and enable decision-making. Due to the short window of opportunity, the UA needs 60 - 70% fidelity. Compared to the general framework of information gained today, this

information must be actionable and targetable. To ensure information superiority, the brigade's information strategy involves a vigorous counter-reconnaissance effort with electronic warfare (EW) employed against enemy high frequency (HF) and cell phone communications.

Set conditions.

The UA must set conditions for mission success by employing a combat battalion as supporting effort to isolate the objective area and prevent the enemy from reinforcing the objective area with maneuver and by fires. Additionally, one company air assaults north of the river to secure the defile and seal off escape routes the rocket launchers would use. The brigade employs precision destructive fires to eliminate target sets identified as high payoff and most dangerous. Actionable and targetable information results from its aviation throughout the AO teamed with unmanned sensors, as well as external C4ISR. In this phase of the operation, combat formations complement placement of NLOS fires to achieve more effectiveness in range and teaming. The UA assumes a key role in fire control and distribution to preclude fratricide. Its leaders must know what their priorities are, what is most dangerous, and what discretion they have in preserving mobility, agility and freedom of action to maneuver units to positions of advantage, and executing fires and maneuver.

Synchronization.

Brigade and battalion echelonment of command are responsible to synchronize ISR, fires, maneuver, survivability, leadership and logistics tailored to mission task and purpose. What is different is the competency and capability to accomplish this task in a very dynamic and adaptive tactical environment. This brigade is able to conduct multiple engagements simultaneously and in succession while fully integrating these elements. Brigade ensures operational momentum by synchronizing maneuver air and ground, weighting the main effort, employing forces to positions of advantage, mission retailoring during tactical operations, cycling combat battalions in and out of contact, building and sustaining combat power, and coordinating, transitions between tactical engagements. Brigade maintains and employs tactical reserves. It integrates air in roles of reconnaissance and attack, and close support of ground operations. Also different is the coherency of a centralized battlefield framework that is responsive to units in contact and their requirements and an increased efficiency in attacking targets in the battlespace that are not directly engaged with your forces. Full integration of maneuver and fires means that units move from one tactical engagement to the next with a fire plan ready for the next battlefield architecture. UA sub elements need the ability to orchestrate and coordinate fire and maneuver continuously. Coherency of the battlefield comes from synchronizing combat power to always have mutual support on hand linked to sensors that can

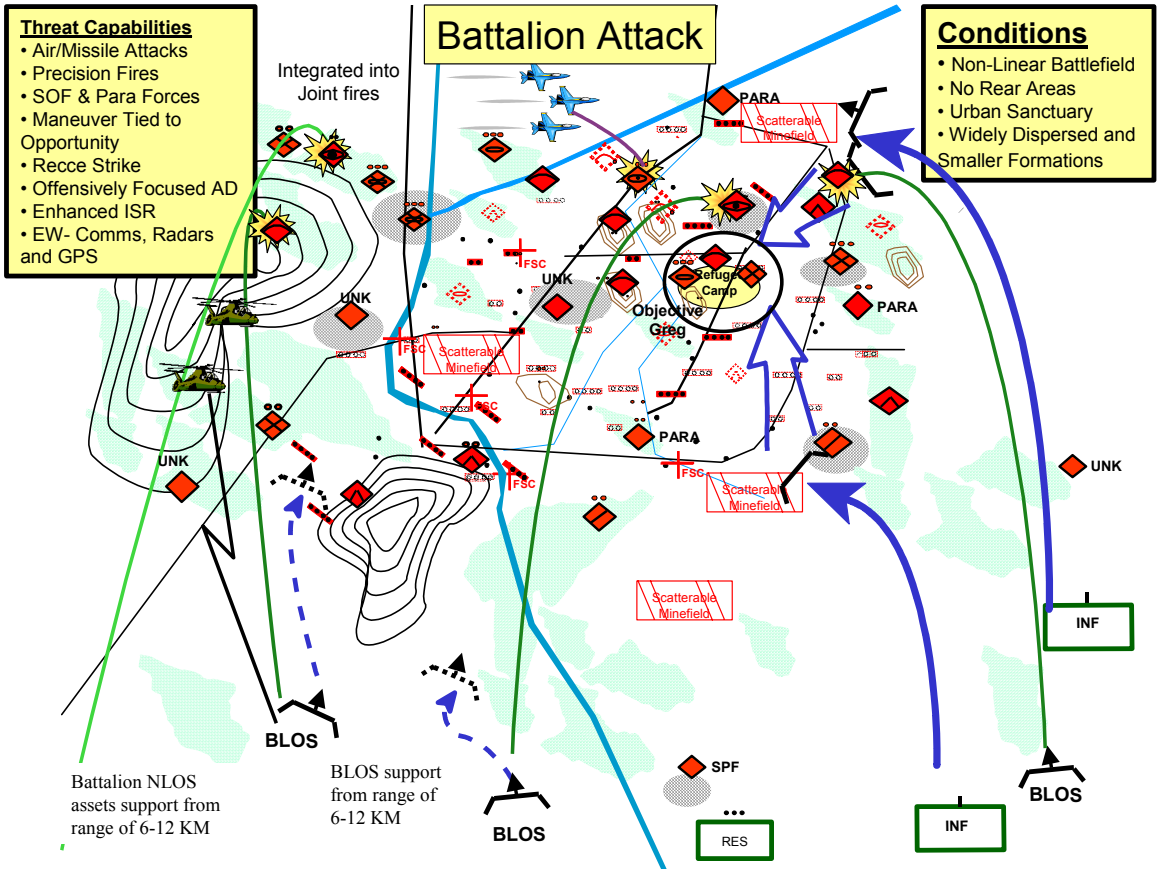
trigger maneuver, fires and supporting fires. The UA requires integrated acquisition and teaming at a very high level in range and fidelity. The vertical dimension provides a very effective means of acquisition to the brigade.

Maneuver.

What is different about this combat brigade is its ability to execute multiple engagements simultaneously and in rapid succession over a large area of operation. Combat battalions fight dispersed and use R&S semi-autonomously. The UA brigade must gain a knowledge base of areas between the battalions to enable this scheme of maneuver.

What's different about the scheme is the number of tactical engagements required to complete the brigade battle all under a time constraint that demands agility, aggressiveness and small unit initiative with clear purpose. The brigade designates the main effort and may shift this responsibility during the battle, executing a passage of lines, and can cycle forces in and out of contact. It has a large tactical reserve and aviation detachment to this end.

4.4.2 Battalion Attack Open/Rolling



Enemy

The enemy is dispersed in small units using extensive camouflage, cover, concealment, decoy, deception weather and terrain, to degrade UA ISR and to facilitate his attacks and ambushes. The enemy will attempt to draw UA forces into a close fight to maximize his capabilities. Mixed anti-personnel and anti-tank minefields and single mines are dispersed throughout the area. Enemy forces, estimated at two company teams augmented with air defense, special purpose forces, anti-tank, paramilitary, and artillery, include mechanized infantry (BMP-1 and BMP-2), infantry (RPG-29), air defense (SA-18, Darya), armor (T-72S), artillery (Purga and mortars), paramilitary and SPF (SA-18, SA-7, RPG-29). An armor platoon, air defense and an infantry unit of unknown size are interspersed within the refugee camp complicating UA targeting. The enemy has the capability to conduct RECCE strikes and deliver scatterable minefields with long-range fires.

Terrain

The ground is primarily open and rolling bisected by a non-fordable river flowing north to south and several smaller intermittent streams. Small villages and several clusters of low-rise building dot the terrain, including residential dwellings, schools, mosques, and commercial structures connected

by unimproved roads and trails. Vegetation includes orchards, agricultural areas, and wild growth of trees and dense underbrush that limit visual and IR acquisition. Two low-rise hill masses dominate the western portion of the area. A 5,000-person refugee camp is located in northeastern area consisting of approximately 250 tents and 20 permanent buildings housing seven different international organizations. Weather in the area is cold with average daytime temperatures of 27-35 degrees F and nighttime lows of 10-15 degrees F. Cloudy, overcast conditions exist 20 days a month with ceilings less than 1,500 feet with intermittent freezing rain and snow. UAV and rotary wing operations will be degraded, especially during early morning hours.

Actions Before Forces are Joined:

The Brigade develops the situation out of contact, determining the enemy's general strength and disposition by using information provided from external joint and Army sources and using its manned and unmanned R&S capabilities to confirm and refine the enemy picture. The fidelity of enemy and terrain knowledge must be sufficient to allow the brigade to decide where battalion engagements will occur and to set the conditions for those battalion engagements.

The brigade decides when and where to fight, selecting the enemy location as the battalion's objective. The assigned battalion engagement, when linked to the other engagements synchronized by the brigade, lead to success of a battle.

The brigade sets conditions for the battalion's engagement by destroying identifiable high payoff targets (artillery & mortars, then BLOS systems) and isolating the objective area. The brigade is responsible for the areas between and beyond battalion engagements, integrating ISR and fires and filling in the gaps. The battalion employs its ISR capabilities to refine the enemy and terrain information in the objective area. Potential BLOS attack by fire positions and approaches to the objective are reconnoitered. Obstacles are detected at standoff.

The battalion maneuvers to a position of advantage while out of contact, using multiple dispersed company approaches. With a clear understanding of the terrain in front of them, platoons and companies use terrain to their advantage, moving from covered position to covered position as they maneuver to assault positions. Companies maneuver with platoons dispersed on their approach axes, with rear platoons overwatching on the move with BLOS. Mutual support is maintained between company axes, given the 12-15 kilometer range of BLOS weapons. Support by fire companies move to firing positions at distances of 6-12 kilometers from the objective to apply overmatching fires at tactical standoff against the defending enemy. Battalion and brigade fires are focused on destroying and

suppressing enemy BLOS systems to allow the companies to reach their assigned locations. Battalion UAV's establish positions to provide BDA of high payoff targets while company UAV's are positioned to provide sensor support for BLOS engagements from the support by fire positions. The assault companies maneuver to get to the flanks and rear of the objective; one company moves to assault the flank, fixing the enemy in place, while the right company maneuvers around to the rear of the enemy position to dislocate the defense and block egress routes to prevent the escape of survivors.

Actions During Contact

The battalion initiates decisive combat at the time and place of its choosing -- company BLOS and NLOS fires from the two attack by fire positions initiate a concentrated attack against the most dangerous targets left on the objective. At the same time, NLOS fires from the brigade suppress enemy positions to reduce the enemy's ability to effectively return fire. This coordinated attack allows the battalion to achieve immediate standoff fire superiority to enable the maneuver of the attacking companies on the right.

The battalion continues to develop the situation in contact using its reconnaissance capabilities to maintain continuous surveillance of the objective while the assault companies maneuver to the objective. The assault companies use their SUAV's to recon the axis ahead of them, providing real time information to each platoon. Unmanned ground vehicles and sensors complement the SUAV's, while platoons in contact provide direct observation and assessment of the situation enroute to and on the objective.

The battalion uses the network to integrate maneuver, fires and ISR, synthesizing the reports from subordinate elements with its own and external sensor information and updating the COP; the commander and staff use 'running estimates' to adapt to the fluid situation and stay ahead of the enemy. The battalion coordinates with CAS and the aviation detachment, prioritizing targets and handing them off to small units for employment. The battalion uses brigade NLOS fires and its organic mortars to suppress, obscure and isolate the objective area to allow companies to close on enemy positions. The attack-by-fire companies are alternately maneuvered forward to new firing positions to increase survivability; the left company switches to primarily LOS fires in its next position. The assaulting companies on the right begin engaging targets with BLOS fires to eliminate most dangerous targets where they will assault.

Tactical Assault:

The battalion finishes the enemy decisively through fire and maneuver and tactical assault. Assault companies close to LOS range and deliver assaulting fires on the move against surviving enemy positions. The

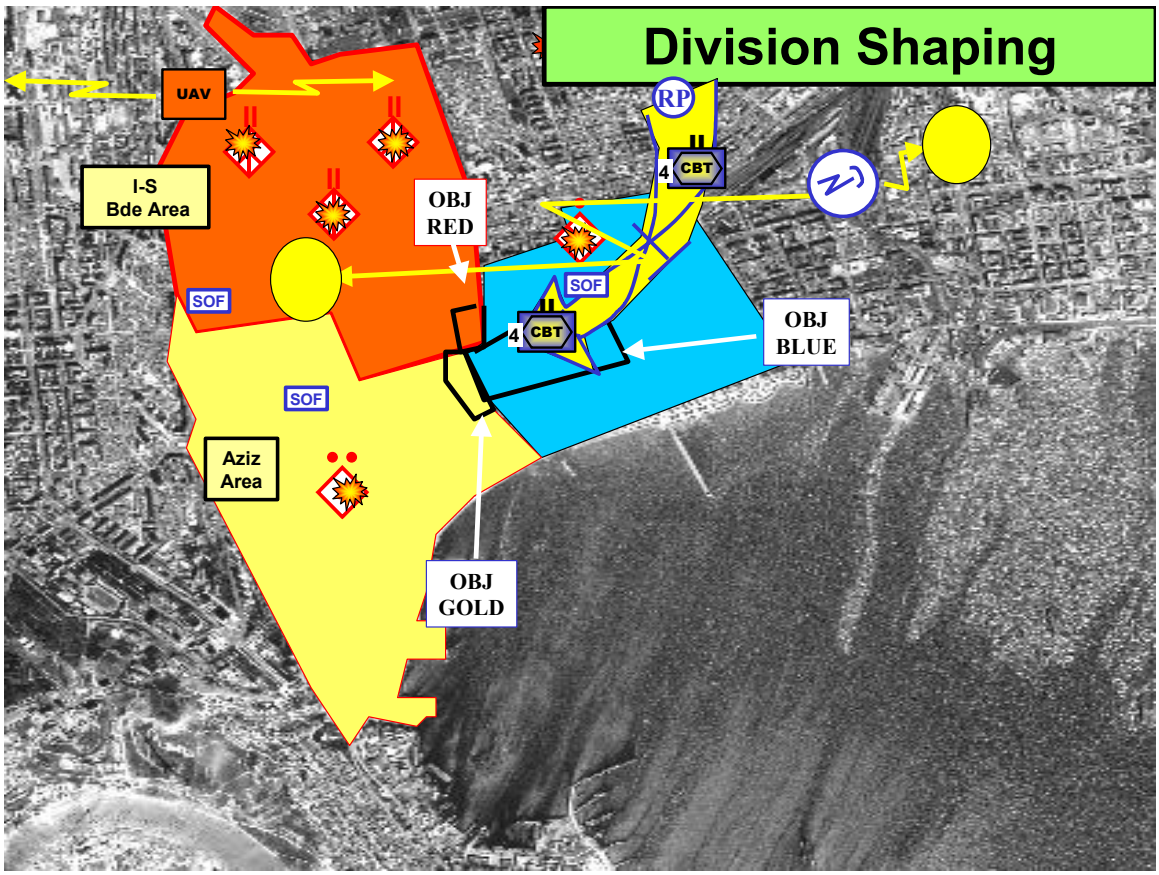
company assaults are executed 'dismounted enabled by mounted' to clear remaining enemy from covered and concealed positions, prevent enemy reinforcement and eliminate enemy mortar and other plunging fires attempting to disrupt the attack. Networked dismounted elements equipped with Land Warrior Block III capabilities integrate support from mounted elements and from battalion and brigade fires, achieving a dismounted overmatch at tactical standoff. Brigade and battalion capabilities are responsive to the small units in contact. Sensor coverage is maintained throughout the assault to see enemy reactions, exploit enemy vulnerabilities, and confirm BDA. Small units in contact provide spot reports, which are immediately shared with adjacent units and higher commanders. Blue situational understanding and control of fires by small unit leaders prevents fratricide. Companies and platoons conduct decentralized execution of mission orders to finish the engagement. Small unit cohesion, competency and capabilities give platoons the ability to close with and destroy remaining enemy, triggering the collapse of the enemy defense.

Transition.

The battalion consolidates and reorganizes on the objective. Casualties are triaged and evacuated. Logistics status reports are updated to determine whether an emergency resupply is needed. Companies cross-load as necessary and prepare to continue operations. The battalion prepares to move to a subsequent engagement, conducting collaborative planning with the brigade.

4.4.3 URBAN

4.4.3.1 Division Attack in Urban Environment



Actions Before Forces are Joined:

Enemy:

The turncoat Icheri Sheher Brigade is a trained motorized infantry force with integrated artillery and air-defense units. The Brigade consists of 1,500 highly motivated fighters, armed with tanks (T-72), wheeled armored personnel carriers, machine-gun equipped light trucks, rocket-propelled grenade launchers, shoulder-fired air defense systems, mortars, and anti-tank missiles (AT-3/5). The Brigade occupies company-sized strong points within the inner city to control key facilities to the government (water, power, and communications). The enemy doctrine for strong points places up to 50% of the company outside of the strong point. The purpose of these elements is to move forward to establish sniper hides, to develop ambush positions often linked with chokepoints or obstacles (urban rubble in many cases), and to provide observation points on approach and flank routes to direct indirect fires. When attacked, the intent of the enemy commander is to attrit the attacking force. Armed clans control the outer city. Anti-government elements are armed with machine-gun equipped light trucks, mortars,

shoulder-fired air defense systems, rocket-propelled grenade launchers, and anti-tank missiles and small arms. The anti-government clans will move to reinforce the Icheri Sheher Brigade with small, irregular, well armed clan units. These clans will want to 'pile on' to join in the attrition and killing of our attacking forces.

Terrain:

Baku is a compartmentalized, three-dimensional city of more than two million inhabitants. Construction ranges from modern skyscrapers to third world cinder block apartments and tin shanties. The adjacent Caspian Sea enables rapid waterborne movement. A system of subways and underground utility tunnels, deep fall-out shelters and trenches enable underground movement; and the city's rooftops over helicopter landing zones afford the enemy sites for air defense ambushes and movement above ground.

Observation is restricted generally to distances of 50 meters or less by the dense network of construction in the city. Cover from direct and indirect fire is abundant, provided by masonry above surface and the subway system below ground. Key terrain to the enemy are the water, power, and communications facilities that control key support systems for the population and are necessary to the government to retain its legitimacy with the Baku population. Key terrain for the UA forces includes the key support system facilities, plus the few open areas that provide LZs for the air assault operations and locations for BLOS fire units. Obstacles will impede ground and aerial movement. Wires and towers are not well mapped and will impede movement by air. On the ground, the opposition will reinforce narrow streets (averaging three meters or less in width) and buildings with hasty expedient and prepared roadblocks. The narrow streets will limit the ability of the UA to operate either with mounted MGS elements integrated with dismounted maneuver. Fields of fire average less than 40 meters in most places. Concealment facilitates movements out of sight and hides ambushes.

Implications of terrain. The UA must account for the advantages that this terrain accrues to the enemy. The enemy will use terrain to cover and conceal surprise reaction to UA maneuver—engaging at 40 meters from hide positions. The enemy will exploit dead space within the urban terrain (subterranean, narrow alleys, and within buildings) to move to ambush or attack the UA either with direct fire or to establish observation in order to employ indirect fires. The UA must cover the dead space in the terrain with persistent observation (ISR through manned and unmanned air and ground capabilities). The UA must employ networked point and shoot capabilities to respond to enemy surprise using LOS, BLOS, and NLOS fires; the UA must maintain mutual support between units on multiple routes and in compartmented urban terrain; it must establish C4ISR to cover the dead

space, to watch flanks, and to provide early warning on enemy repositioning or clan elements moving to reinforce company strong points and ambush locations; and must employ its communications network to maintain force cohesion on ground, in subterranean terrain, and within buildings.

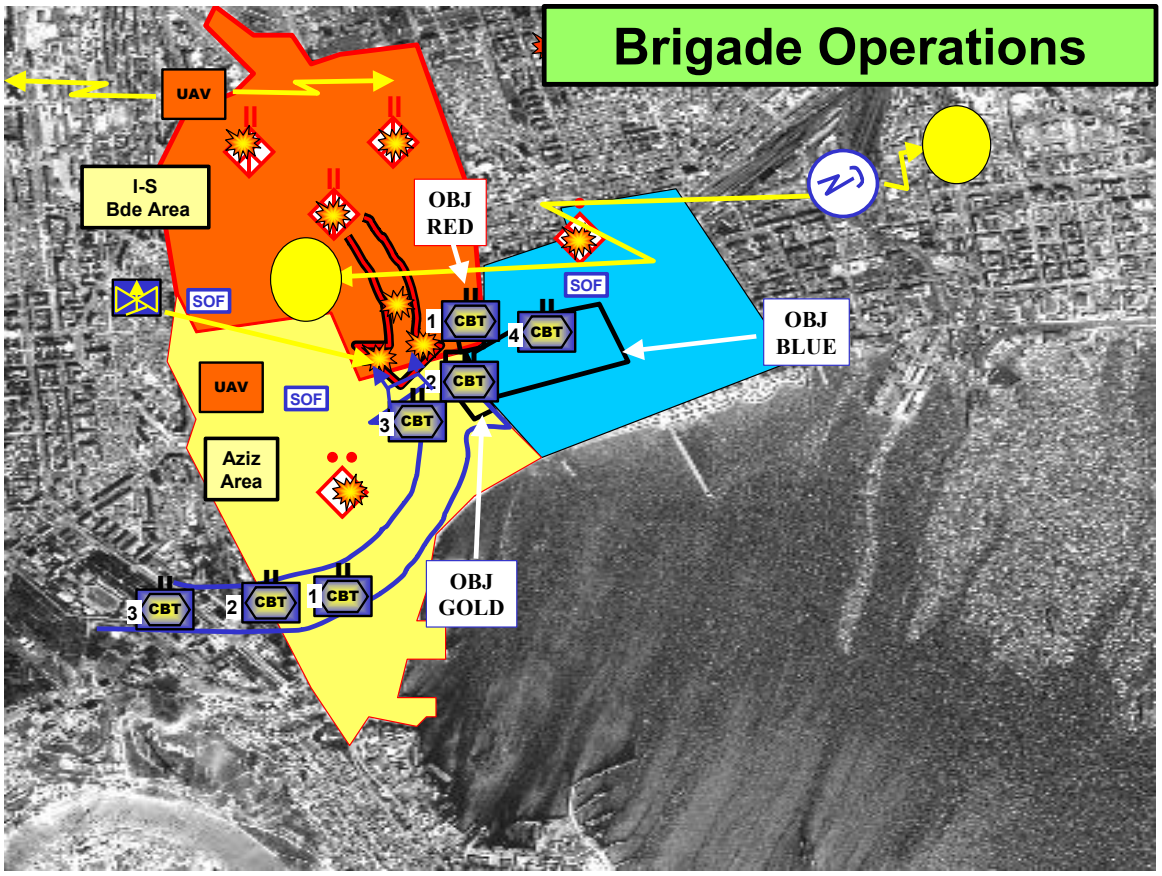
Division Shaping:

The division shapes the battlespace for subordinate units, building the necessary combat information to ensure success and attacking electronically and with lethal fires key enemy command and control nodes and positions. The division attack will be into a small portion of the large Baku urban area. The attack will focus on regaining control of the critical infrastructure (water, power, and communications/ TV-Radio)—an operational center of gravity for the theater campaign plan. The division employs two brigades for this operation. The supporting effort brigade will execute a battalion air assault into LZs in the north of the inner city. The air assault battalion employs dismounted troops with dismounted LOS/ BLOS mission equipment packages that can be delivered by air assault. The air assault force will attack to secure overwatch locations and to block the reinforcing routes into the inner city. The brigade identifies primary and alternate landing zones and develops the SEAD target list. Division fires and ISR support the Brigade. The air assault brigade executes the air assault operation; upon landing and link up (virtually, later physically), the brigade passes command and control of the air assault battalion to the second brigade which will attack by ground from the south. The ground vehicles of the air assault battalion move with the ground attack units to link up with the air assault battalion.

The second brigade is the main effort. It will attack on the ground with three combat battalions from the south and south west to open up to three ground line of communications into the inner city, to secure the water and power facilities, and to dislocate and destroy the Icheri Sherer Brigade as an opposing element and will assume attachment of the air assault bn at linkup.

The tactical concept discussion focuses on the Main Effort Brigade and one of its Battalion's attack.

4.4.3.2 Brigade Attack in Urban Environment



Narrative for the Illustration of Brigade Attack

Actions Before Forces are Joined:

The main effort brigade will attack on multiple routes from the south and west of the inner city. It develops the situation out of contact, refining the enemy's general strength and disposition by using information provided from external joint and Army sources and using its manned and unmanned reconnaissance capabilities to include air cavalry troops to confirm and refine the enemy picture. The brigade identifies and allocates ISR assets to cover gaps and dead space in the terrain which can provide the enemy the opportunity to move to achieve a position of advantage.

The brigade sets conditions for the battalion's engagement by destroying identifiable high payoff targets and isolating the objective area, physically (with fires and forces), electromagnetically, and psychologically. The brigade is responsible for the areas between and beyond battalion engagements, integrating ISR and fires and filling in the gaps. The brigade blinds the enemy through a combination of capabilities to include obscurants, jamming, signature reduction, deception, disinformation, and pattern

avoidance. The battalion employs its ISR capabilities to refine the enemy and terrain information in the objective area, building a 3D virtual battlefield that makes urban combat different than other conditions. The battalion employs ISR assets to include unmanned ground sensors to maintain observation on subterranean avenues of approach as well as to observe for concealed enemy in buildings. ISR detects, finds, and then facilitates the destruction of enemy sensors. Potential BLOS attack by fire positions and approaches to the objective are reconnoitered.

Situational awareness of the conditions (enemy and terrain) gained from organic and external sensors enable the battalion to maneuver to a position of advantage. The Brigade's air cavalry troops with RAH66s teamed with UAV's provide reconnaissance and surveillance ahead of maneuver, and assist in observing gaps and dead space for enemy reaction to the Brigade attack. The Brigade's coordinates its efforts with the recon troop of the battalion, which moves on multiple routes forward of companies to identify mobility problems and enemy positions. Recon and surveillance assets from both brigade and battalion are able to direct internal and external fires. The awareness of the terrain and enemy also allows the battalion to use multiple dispersed company approaches for the ground attack. Battalion and brigade fires are focused on destroying and suppressing high payoff targets such as enemy mobile reserves and NLOS/BLOS systems to allow the companies to reach their assigned objectives. Battalion UAV's establish positions to provide BDA while company UAV's are positioned to assist small unit leaders in observing dead space as well as in determining building entry points.

Small units must remain capable of reacting to unexpected enemy contact and regaining the initiative, taking advantage of the UA's overwatch and mutual support capabilities. All company and below formations move with continuous overwatch by precision standoff fires / mutual support remains fundamental. All elements maintain 360 degree observation for security at all times. Mounted and dismounted elements possess point and shoot capability to act first when the enemy appears—this point and shoot capability is networked so that sensor to shooter relationships result in responsive, precision fires (fire and forget) in seconds.

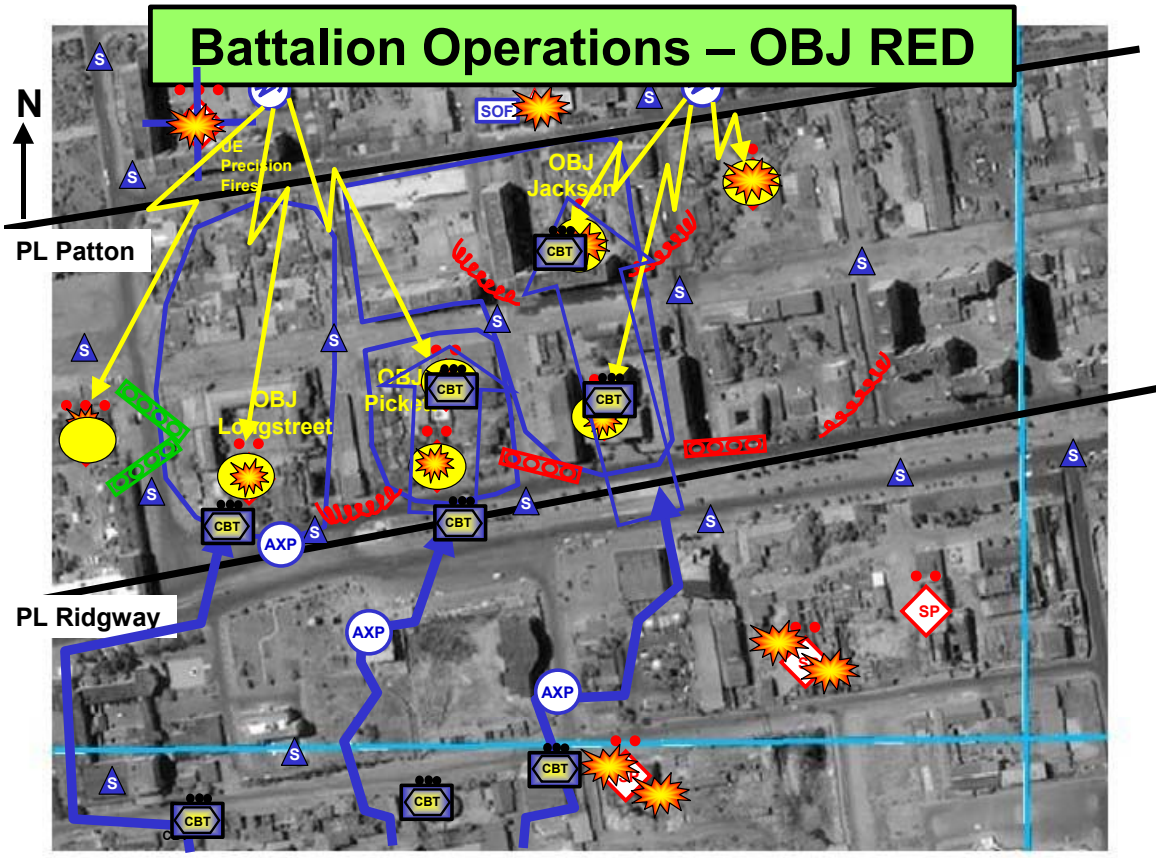
The C4ISR network supports the maintenance of force cohesion throughout the terrain (outside, within buildings, and under ground) and enables elements in contact to achieve lethal overmatch very rapidly with a combination of precision and suppressive fires from BLOS and NLOS capabilities. Upon surprise engagement by the enemy from hide positions in subways / alleys / buildings, etc, the UA's small elements are able to respond with accurate fire immediately and through mutual support finish the enemy decisively in order to continue to move toward their objective.

Throughout the approach, Brigade ISR is layered and supported by the C4ISR networked communications to include ISR capabilities provided by division and joint assets oriented on the objective area. Fully networked, tiered, multi-echelon and multi-dimensional ISR, fires and maneuver are essential to assure overmatch in lethality, survivability, mobility, and information in the urban conditions.

The purpose of R&S during the approach is to gain dominant situational understanding continuously under day and night conditions throughout the tactical operation. First, it is mobility-oriented to enable the infiltration attack of the maneuver companies. Recce detachments are committed to route reconnaissance. In addition to route reconnaissance to identify mobility problems, the recce elements establish observation along the route with leave behind unmanned ground sensors at potential enemy ambush locations. Snipers in the detachments are posted at key locations to provide manned Observation Points linked with ground and air sensors to deny enemy security elements that may attempt to disrupt UA movement to the objective. RAHs teamed with UAV's assist in observing flank routes for enemy response to isolate small elements of the UA. Secondly, R&S focuses on the objective area to determine enemy strong point disposition, internal and external to the objective; location of enemy mortars and other indirect fires that may disrupt our attack. Third, R&S observes lateral and reinforcing or withdrawal routes. These requirements drive layered ISR to produce a high fidelity of information before, during, and after the operation. The Brigade MI analysis capability leverages all sources of ISR information from divisional and joint sensors to include SOF, its Brigade air cavalry troops, and from the forces in contact to build a high fidelity of information, pushed to commanders and leaders throughout the operation.

2277 4.4.3.3 Battalion Attack in Urban Environment

2278



2279

2280 **Narrative for the Illustration of Battalion Attack**

2281

2282 Actions during contact: The battalion initiates decisive combat at the
2283 time and place of its choosing -- Company BLOS and NLOS fires initiate a
2284 concentrated attack against the most dangerous targets left on the objective
2285 which is a main communications facility for the government in Baku. Recon
2286 troops supported by brigade RAH observe enemy withdrawal or reinforcement
2287 routes. Unmanned sensors are tossed into subterranean entrances to provide
2288 warning of enemy counteractions using these routes.

2289 The battalion continues to develop the situation in contact using its
2290 reconnaissance capabilities to maintain continuous surveillance of the
2291 objective while the assault companies move to the objective. The battalion
2292 leverages CCIR information provided from the Brigade MI analysis
2293 capability. The assault companies use their SUAV's to recon the axis ahead
2294 of them, providing real time information to each platoon. The battalion's
2295 UAV's watch for enemy attempts to reinforce the objectives and assist in
2296 targeting moving enemy outside buildings. Unmanned ground sensors

identify unoccupied buildings and structures with through-wall sensors to allow the assaulting forces to maintain momentum. Small units execute mounted maneuver enabled by dismounted elements at choke points and obstacles to accomplish rapid forward movement through 'urban defiles'. Overwatch is maintained within platoons and by mutual support from BLOS in sister platoons. The platoon employs scaleable fires to suppress, to isolate, and to protect flanks. Obscurants from internal and external capabilities are employed to blind the enemy.

The battalion uses the network to integrate maneuver, fires, and ISR, synthesizing reports from subordinate elements with its own and external sensor information and updating the COP; the commander and staff use 'running estimates' to adapt to the situation and stay ahead of the enemy. Battalion coordinates with CAS and the aviation detachment, prioritizing their targets and handing them off to small units for employment. Platforms continue to move forward, switching to LOS fires when appropriate, but prepared to employ BLOS fires for targets impossible by LOS fires.

When developing the situation in contact, the mandate for this UA attack is to move to positions of advantage with speed and accuracy, leveraging mutual support and the organic and external lethality to conduct the assault. Commanders decide while developing the situation whether to employ an advance guard to clear routes for use by assaulting companies and follow-on forces. Secondly, they decide whether to make these moves 'dismounted enabled by mounted' or vice versa based on existing conditions. Conditions unique to each route may call for different techniques across the formation.

In this compartmented scenario, the MGS and other platforms would be employed in immediate direct fire support of the dismounted infantry. Leaders will seek the capability to provide interlocking direct fires in overwatch from MGS and dismounted weapons. BLOS fires from MGS and battalion mortars (PGMM) provide the ability to provide overwatching fires to attack enemy masked by buildings or in upper floors or roofs of taller buildings (for example, MGS direct fire might be limited to 3rd floor height, where MGS BLOS can get precision fires against sniper or ambush at higher points up to the 14th story as well as against enemy T72s in key hole firing positions. Finally, commanders monitor and adjust routes based on changes to original variables and assumptions. Units are optimized for actions on contact against surprise encounters with the enemy strongpoint's security elements or local counterattacks in response to our attack. Recon Troop, FCS-MGS and Infantry elements must possess point and shoot capabilities, which are very capable at ranges of 50 meters and less; this requires networked sensor-shooter (BLOS and NLOS) at very close range, to provide highly responsive (5 seconds or less) deadly first time kill counteraction to enemy reaction from covered hide positions. This point and shoot capability,

supported by the pervasive network communications, permits the small unit to achieve lethal overmatch through mutual support and reinforcing fires.

Tactical Assault.

The battalion finishes the enemy decisively through assault. The companies dismount to clear identified buildings and structures. Networked dismounted elements integrate support from the mounted elements and from battalion and brigade fires, achieving a dismounted tactical standoff overmatch. Unmanned ground and aerial systems help pinpoint enemy locations and entry points inside buildings. Throughout the attack, the battalion continues to maintain persistent observation on dead space and gaps to deny the enemy the opportunity to move to a point of advantage to react to the attack. Robotic systems breach obstacles, doors, and walls to allow assaulting elements to move along the most advantageous routes. Sensor coverage is maintained throughout the assault to see enemy reactions, exploit enemy vulnerabilities, and determine BDA. Blue situational awareness and control of fires by small unit leaders prevents fratricide. Companies and platoons conduct decentralized execution of mission orders to finish the engagement. Dismounted Infantry elements operate as lethal teams and are prepared to respond against enemy engagement from hide positions. The dismounted squads maintain overwatch with precision fires within the building as they enter and clear rooms. Additionally, the dismounted force in the building receives mutual support by precise BLOS fires. The network ensures that LOS, BLOS and external and internal NLOS fires as well as close support by RAH 66 are available on demand to support the Infantry elements as they move through the objective. Force cohesion is maintained through a reliable network that provides C4ISR communications to standard within the building and in the subterranean spaces below the building and streets where small units may need to maneuver. On request, the UA employs joint Close Air Support scaleable effects against appropriate targets such as enemy counter attacks identified by ISR elements or against dislocated enemy attempting to withdraw from the objective area.

Transition.

The battalion consolidates and reorganizes on the objective. Networked C4ISR facilitates collaborative planning to quickly provide mission orders. Reconnaissance and surveillance capabilities maintain observation by manned and unmanned sensors. Surveillance on cleared areas, dead space, and gaps is continuous and persistent. Casualties are triaged and evacuated, aided by robotic systems. Logistics status reports are updated to determine whether an emergency resupply is needed. Companies cross-load as necessary to continue operations. The battalion prepares to move to a subsequent engagement, conducting collaborative planning with the brigade.

4.5 BATTLEFIELD FUNCTIONAL AREAS

4.5.1 Battle Command[3]

Battle Command is the ability of the commander to lead soldiers and command or direct shaping, sustaining and decisive actions of all elements of combat power within and below the echelon, and to seamlessly integrate and synchronize combat elements above the echelon supporting close combat while on the move and from any point in the battlespace.[3]

Battle command synchronizes knowledge of combat power and the human dimension of leadership. The Unit of Action (UA) requires mentally agile, intuitive and adaptive leaders at all levels to conduct full spectrum operations. They must 'feel' the battle and its component elements. They must understand military art and be competent in their doctrine; they must understand maneuver and how to employ their unit's capabilities. They must also know how to apply the hands on leadership necessary to guide and direct their employment. They must understand the variables of the dilemma they are a part of, lead the effort to reconcile what has got to get done, then put the necessary emphasis on priorities. Leaders must be in proximity of where they need to be to influence the outcome of battles. Battle command technologies such as terrain and problem solving tools must enable them to perform their roles, within the formation, so if they have to maneuver sub units, they have the wherewithal to maneuver them effectively and properly. If their role is fires, they have the wherewithal to be in position to direct and synchronize those fires and the ability to direct their role as integral to maneuver. If they have a role in control and distribution of fires in a tactical engagement, they will know where their capabilities are, where the enemy is and where to establish priorities in their fire plans. Regardless of their tactical role, leaders must have a feel of the terrain and appreciate its tactical implications since it affects everything – tactical concealment, employment of weapons, mobility, and seeking positions of advantage.

With decision skills enabled by the common operational picture (COP) they can:

- Maintain situational awareness and understanding at all times in assigned areas of operation (AO) and surrounding areas of interest (AI). This is more than just providing fused sensor data to provide a COP. It includes

[3] For a detailed discussion of battle command see "Battle Command For Army Forces In 2010 And Beyond" Combined Arms Center, Ft. Leavenworth, Version 3, seven June, 2002.

the ability to collaborate with subject matter experts, subordinate, adjacent and higher commanders and staffs in real time to develop a complete appreciation of the situation. The purpose of the COP is to enable situational understanding, decision-making and problem solving by commanders; answer his CCIR; facilitate tactical action; and analysis tailored to the mission, tasks and purpose of each tactical echelon. The UA COP is real to near real time in timeliness. It promotes understanding of the current situation and what to do about opportunity or dilemmas in the battlespace. It also promotes visualization of future concepts of operation and end state. The COP enables knowing, thinking, and understanding one to three steps ahead of the enemy because leaders understand their capabilities and how to employ, their strengths and limitations; understand terrain and how to use it to advantage and deny its use by the enemy. Linked to terrain analysis and problem solving tools, the COP helps commanders deal with dilemmas and enables employment of the unit with better confidence and operational effectiveness.[4]

- Identify schemes of maneuver, opportunities, decisive points, terrain and weather implications, enemy strengths and limitations, conceptualize solutions through accelerated collaborative planning, automated course of action analysis, terrain analysis and problem solving tools, rehearsal and simulations. The commander requires tools to help him describe his vision in collaboration with subordinate, adjacent and senior commanders and staff; and to direct actions through mission orders with clear commander's intent that empower subordinate unit initiative.[5]

- Make reasoned, timely decisions, recognize opportunities / dilemmas, reconcile problems based on information available. Commanders leverage staffs and intelligent agents in their information systems to assist the chain of command in filtering through the vast amount of information so they only focus on the most pertinent items relative to purpose, decision-making and problem solving. They monitor and adjust changes to the original variables and assumptions.

- Synchronize maneuver, fires, force protection, ISR and leadership. Commanders monitor preparation to ensure compliance with guidance and intent.

- Command and control of units is assisted by the COP, the functions of battle command, and airspace management. Each of these is discussed below.

The responsibilities for Battle Command do not rest solely on the backs of commanders. Staffs have a key role in supporting and advising commanders during planning, preparation and execution of tactical operations. They provide analysis and information to commanders, manages information, performs staff estimates, exercises control over functional areas,

performs battle tracking to ensure compliance, and conducts staff coordination.

4.5.1.1 The Common Operational Picture

The COP is a single fused picture containing real to near real time information depending on the echelon. For example, tactical units need combat information that is very actionable and targetable concerning the location and status of enemy, friendly, civilian, weather and terrain required for situational awareness and rapid decision-making. ISR and acquisition systems feed enemy, terrain and weather information derived from R&S, troops in contact, intelligence derived from analysis, and estimates where information is incomplete but essential into the COP. A significant advance in terrain is critical to allowing leaders to understand terrain, how to use it to advantage and deny its advantages to the enemy. Automated friendly force (to include SOF and coalition forces) identification, and tracking of combat power status provide the information on friendly forces (manned-unmanned, mounted and dismounted, air-ground, supporting to supported) required to complete the COP. The purpose of friendly force information is more than situational understanding – it must support complex operations such as link-up and passage of lines, synchronization of combat power in time and space, and fire control and distribution.

There are critical functions routinely accomplished by the command group to enable the Unit of Action commander to command. These critical functions are:

- Execute Battle Command: We want to strengthen the ability of leaders to understand their environment in order to seek advantage very aggressively with competency in individual and collective combat skills. What is different, is the ability of leaders to employ lethality, both internal and external. **Key to this construct is that we have multiplied the axiom about lethal small units being at the center of the UA's ability to achieve tactical decision.** The ability to combine fires with the capabilities of soldiers working together more effectively as a combined arms team rather than as individuals or stove-piped functionalities is the core of the ability to distribute fires and employ maneuver more effectively.[6]

- Monitor/Direct ISR Operations: Commanders drive intelligence collection by establishing CCIR and focusing R&S efforts. What's new here is the mandate to have a high fidelity knowledge base tailored to echelon mission tasks and purpose before, during and after tactical operations. R&S will be reevaluated and redirected constantly to ensure it develops the necessary knowledge base in dynamically fluid situations.

Monitor/Direct Maneuver Operations: The brigade is optimized to close with and destroy enemy when forces are joined by: bounding overwatch under contact, fires at standoff and movement not in contact, fire and maneuver, and tactical assault against all threats in any terrain and weather condition. This includes moving tactical formations or sub units and systems in combination with any form of lethality to engage an enemy with LOS, BLOS and NLOS fires when under observation by an adversary and in contact. Leaders must be in proximity of where they need to be to influence the outcome of tactical engagements and battles. It's also about being able to perform their roles within the formation so if they have to maneuver sub units, they have the wherewithal to maneuver them effectively and properly. If their role is fires, they have the wherewithal to be in position to direct and synchronize those fires and direct them to complement maneuver. If they have a role for control and distribution of fires in a tactical engagement, they have the ability to know where their capabilities are, where the enemy is and where to establish priorities in their fire plans. Leaders must have a feel for the ground and appreciate its tactical implications since it affects everything – tactical concealment, employment of weapons, mobility, and seeking positions of advantage.[7]

The UA commander is the key tactical decision maker. To make appropriate decisions, he must have access to accurate, timely information and be able to take advantage of accurate systems and detailed battlespace analysis. This type of analysis is currently provided only at static tactical operation centers (TOC). The Unit of Action will not have traditional static Tactical Operations Centers or rear CP's. Two command groups and a mobile tactical command post will support operations through a distributed network.

The commander-focused intent-centric environment is the hallmark of the network and information empowered UA, bringing situational awareness of the total environment, friendly, neutral, unknown and enemy, to the commander, where and when he needs it, in an intuitive format. Further, it allows him to collaborate both vertically and horizontally with other leaders to seize and maintain battlespace understanding to act first and finish decisively. [8]

The Unit of Action commander conducts operations through mobile vehicle mounted and man-portable systems. BCOTM allows the commander to adapt to emerging situations more quickly than his adversary. He adjusts his fight in real time to develop enemy actions as opposed to merely fighting the plan. The rapid resynchronization of forces and functions mitigates the potential loss of synchronization.[9]

4.5.1.2 Army Airspace Command And Control (Army Airspace Command And Control)

Army airspace command and control as an integrated concept of battlespace management helps provide situational awareness and understanding through a single, integrated air picture (SIAP). Its purpose is to provide positive, procedural coordination, integration, synchronization, and regulation for Army manned and unmanned aviation assets within the battlespace. In the Unit of Action, this is not a separate, stand-alone process, but rather an integrated networked process to better enable UA operations in the JOA. This is accomplished by Army airspace command and control competency and capability organic to the UA staff that:

- Deconflicts, synchronizes, and integrates all air-ground operational requirements with fires in time, space and altitude throughout the joint battlespace.
- Employs positive and procedural control measures.
- Develops and maintains a real-time SIAP thru multi-path communications with all members of the air-ground team.
- Enables commanders to effectively orchestrate integrated air and ground maneuver, fires, and air defenses in support of decisive operations within their AO.

Successful airspace control is a key enabler for Army and joint forces that fully synchronizes use of the third dimension in the joint battlespace. Army forces, integrated with joint, multinational, interagency forces, and in some cases, with civilian authorities, coordinate use of this airspace. UA staffs execute coordination as a part of their mission planning process. Automated tools exchange near real-time data to enable coordination. UA develops airspace control plans in accordance with UE and joint airspace plans to ensure efficient use of time, space, and purpose in the third dimension. Staffs coordinate ground and air battlespace geometry, fire support coordination measures, air and missile defense status, air traffic and joint airspace control information. However, this must be an execution-based process in which changes in the airspace situation can readily occur based on changes in priorities, mission parameters, or actions by an adaptive adversary may necessitate responsive changes to airspace control. At the core of Unit of Action A2C2 is positive control of the airspace, significantly contributing to friendly force freedom of vertical maneuver in a non-linear battlespace.[10]

4.5.2 Intelligence, Surveillance AND Reconnaissance

The ISR architecture in the UA has one purpose – to strengthen leader abilities to understand the environment, in order to act to seek advantage

very aggressively to a much greater competency in combat skills. The UA provides a capability to develop the situation and know more about what's going on before, during and after tactical operations with strengthened capabilities to provide it to small units.

ISR in this brigade must enable freedom of action, speed, mobility and mutual support of its combat and supporting elements. It is designed to empower small units with responsiveness, agility, lethality and survivability, and an ability to operate with greater competence, confidence and purpose. It enables precision fires to deliver killing blows on enemy targets sets integrated with maneuver. What is different in the UA is an imbedded capability to begin developing situational understanding at the outset with brigade manned and unmanned air-ground R&S, recon detachments in each of the combat battalions, BLOS elements in overwatch linked to NAI /TAI, and 'troops in contact'. These 'tiered' capabilities are fused with external sources and distributed rapidly and effectively in terms meaningful to subordinates and responsive to changes in mission. This is particularly important given the dynamic action, reaction and counter action that occurs once forces are joined.

The purpose of the aviation detachment at brigade is to perform organic day/night R&S that is highly responsive across a dispersed area of operation leveraging air and ground, manned and unmanned competencies and capabilities. The detachment is able to dominate the battlespace in terms of ISR and can direct fires to destroy high payoff or most dangerous targets sets in support of ground maneuver.

The combat battalion recce detachments conduct mounted and dismounted R&S operations to develop battlefield mobility and emplace observation. The purpose of the detachment is to enable maneuver battalions to operate with a degree of semi-autonomy from the brigade. It performs R&S on a minimum of three routes or nine NAIs and performs target acquisition as part of its normal operations. The sapper element is exclusively mobility focused to enable bypass with some demolition expertise. The detachment also employs snipers for lethal precision fires to clear and secure points in restricted / urban terrain.

Brigade ISR is more than just fusing sensor data to provide a COP. Since combat information has to be very actionable and targetable, it must be real to near real time in responsiveness. It must facilitate knowing, thinking, and understanding one to three steps ahead of the enemy. It must help leaders understand terrain, how to use it to advantage and deny its use by the enemy. Its success is measured in terms of enabling leaders to understand how to employ their capabilities with better confidence and operational effectiveness linked to mission and purpose.

This system of systems relies on automation for processing, fusing and managing the distribution of very actionable information across the UA.[11] The concept of this ISR network is as complex as it is critical to provide a 'see, decide and act' advantage over future opponents. The architecture needs to fuse artificial and human intelligence coming from many sensors in a way that it is fused at the source, and provided directly to the action agent. Today, information is collected in functional databases, then analyzed and synthesized prior to being disseminated. This latent means of processing information is unacceptable for future combat operations. The architecture must process a variety of observables from different, but complementary sources, and produce timely and actionable information. JTRS will be the primary mechanism of routing actionable information from multiple sensors to the proper agents.

Fusion will take place at multiple levels. Some sensors with on-board processing capability will fuse information themselves, such as an ELINT sensor linking a radar signature to its associated air defense system, while other fusion will be conducted within the network. A static well-camouflaged enemy can easily avoid detection by a UAV and, in radio silence, SIGINT collectors as well. A thermal collector may obtain indicators, but will introduce the ambiguity as to identity, friend or foe, and intentions. Fusion of data and information from multi-dimensional, multi-echelon (tiered) sources, manned and unmanned, will remain an integrated organizational, technological and leadership solution.

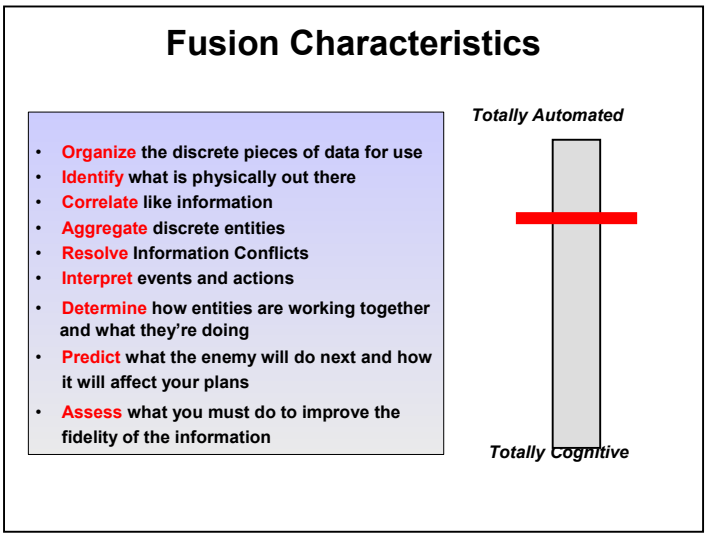


Diagram 4

The Unit of Action will have significant capabilities fused from a variety of ISR sources, magnifying the synergistic ability to 'see' the battle space for the force. Sensor fusion will not be enough for the adaptive and asymmetric adversary in the evolving operational environment. Complex battlefields and asymmetrical opponents require far more of the "art" element - reconnaissance enabled by sensors - to penetrate enemy concealment, intentions and systems in ways impossible to determine only with unmanned sensors. It is the synergies of pairing manned and unmanned ISR that will provide information dominance.

Fusion is the process in which data generated by multiple sources is correlated to create information and knowledge. The chain of command decides what information is required for tactical operations. There are several requirements for fusion. First is to gather information. The fusion architecture, operating over integrated communications networks, must be capable of accepting data from all ISR sources organic and external. This includes sensors on board combat vehicles and soldiers, organic manned and unmanned R&S platforms, and external sensor constellations. The second requirement is to draw relationships between source inputs. Fusion ensures that information is not stove-piped, but is fully exploitable across the entire force. The final requirement of fusion is to provide meaning to the information that has been acquired. This - the most important function of fusion - ensures that information gets converted as quickly as possible into actionable information.

Three distinct links must be supported by fusion in the UA. These are 1) sensor-to-shooter, 2) sensor to decider and maneuver, and 3) sensor to analysis node.

4.5.2.1 Enabling Concepts.

The ISR architecture needs to fuse artificial and human intelligence coming from many sources in a way that it is fused at the source, and provided directly to the action agent. It is required to provide data directly to weapon systems with tight sensor-to-shooter links, satisfy commander's critical information requirements (CCIR), and empower small units with responsiveness, agility, and an ability to operate with greater competence, confidence and purpose. It also needs to support analytical efforts. At each echelon, from Soldier to platoon to the UA brigade, information is processed on local platforms and fused to contribute to a localized COP. A series of intelligent agents, profiles and filters built into the processors and modified to suit specific situations during pre-combat preparations ensures actionable information reaches the proper points of fusion at other echelons.[12] [13]

Joint/Multinational/Interagency Interoperability. The Distributed Common Ground System (DCGS) architecture at the divisional UE allows the command integration centers of the Unit of Action brigade and battalions to integrate the fused information and intelligence. The Distributed Common Ground System (DCGS) also gives the UA the ability to incorporate the ISR systems of legacy and interim forces into the UA's sensor network.[14]

Reach Capability. The UA also obtains actionable information, situation awareness, and additional ISR coverage from the UE, JTF, theatre coalition and national resources. The Distributed Common Ground System (DCGS) at division links to the C4ISR architecture in the UA to provide timely and actionable feeds to deployed tactical units.

4.5.3 Critical Functions of the ISR System

Tactical CP's of the Unit of Action at brigade and battalion will perform the critical functions of planning and synchronizing intelligence, reconnaissance and surveillance operations. ISR is an *operational* function that will be led by a combat arms officer closely linked to the information cell. The information cell of the command post is responsible for: determining what needs to be collected against, analyzes and presents information to support timely situational understanding and force protection; supporting the decide, detect, deliver and assess functions of the targeting process; and

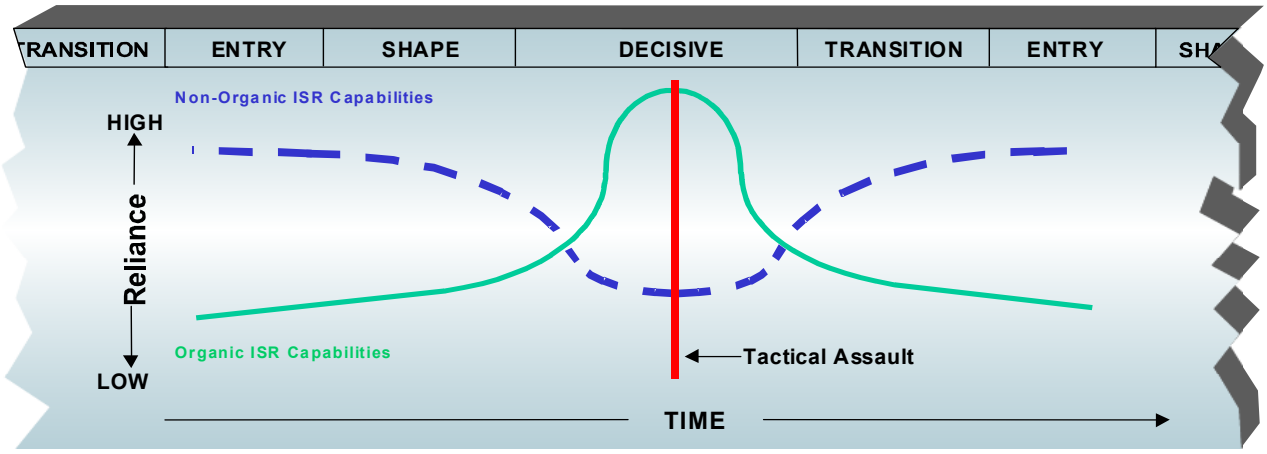


Figure 1 ISR

providing information and electronic warfare support to tactical operations. Using the battle command process as a framework, the following are specific functions of the command post:

Plan and direct intelligence, reconnaissance, surveillance operations. The operations cell of command posts employ Unit of Action ISR assets to satisfy the information needs of this force fused with external C4ISR. The

common operating picture (COP) is the sum total of all relevant data contained in an integrated, distributed information database. It includes information on terrain, weather, civilian, enemy and friendly employment and helps users draw implications collaboratively from this data in near real-time. Because of the wide variety of sources that generate this information, the C2 construct in the Unit of Action employs intelligent 'assistants' throughout the force that are able to quickly correlate and decorrelate information, and employ artificial intelligence based learning algorithms that compare this data to a historical repository for pattern and predictive profiling. The COP serves several information purposes: 1) Commander's critical information requirements (CCIR). These are pre-stated metrics that drive the collection process and are 'red flags' for immediate routing to commanders or sub commanders for decision-making; 2) 'Running' estimates. Built into C2 systems will be usable filters that allow commanders and staffs to rapidly sort through the volumes of information in the COP and to determine what this means from the user's standpoint. This capability is at the core of formulating estimates of the situation; 3) Exceptional information. This is information that the commander has not asked for, but a competent staff officer realizes its criticality to mission and reports it to the commander as a matter of judgment. Because of the dynamic, adaptive nature of the operational environment (OE), there are some things we simply cannot predict in advance. These capabilities contribute to persistent situational understanding throughout the battlespace. However, situational awareness is also empowered by commander presence at decisive points and his ability to collaborate with subject matter experts; subordinate, adjacent and higher commanders and staffs in real time to develop a complete appreciation of the situation. When combined, these capabilities promote knowing, thinking and understanding one to three steps ahead of the enemy and promote visualization of future action, concepts and endstate. Through the C4 network, this COP is seamlessly distributed throughout the force. Collection, processing and analysis of information supports three parallel views of the enemy and battlespace – what the enemy is presently doing, what he may do next, and what he plans to do in the future in relation to terrain, weather and our employment. In tactical operations, and most especially in complex and asymmetrical situations, pattern and predictive analysis remain a human endeavor and has to be derived through the art of intelligence.

Collect. The commander's requirement for enhanced situational understanding throughout the Unit of Action requires a robust suite of collection assets organic to the UA and its subordinate organizations, as well as exploiting the synergy of interdependency with other Army and joint forces in theater, supporting and supported by the fusion of information collected across the entire spectrum of operations and echelons. Command Posts synchronize the collection capabilities of all intelligence, reconnaissance, and

surveillance sources to permit the persistent 'quality of firsts' so essential to the UA's success.

Process. The volume of raw data generated by Unit of Action ISR will present future commanders with tremendous data management challenges. The Unit of Action is optimized to continuously fuse information from the array of organic R&S, external sources, and 'troops in contact' to build the COP. The C4ISR architecture is designed to support the needs of each echelon; and is optimized to provide relevant combat information to small tactical units. The ISR management function is responsible for disseminating information to new time standards. To achieve the tactical concepts in this O&O, some information needs to be sent directly to users such as 'shooters', for immediate force protection action, to cue ISR coverage from wide to narrow, etc. Combat information must also be sent directly to commanders or sub commanders for decision-making or to redirect actions. This category of information is time critical and does not require processing to be immediately useful. Finally, information is provided to information analysis centers or other cells for deeper analysis to provide still greater clarity, quality or confidence.[15] To this end, ISR managers will need the capability to predetermine linkages through filters or routers for timely, reliable information flow. Processing is a distributed function within the UA. Each echelon, from platoon to the Unit of Action brigade, has the ability to fuse information derived from its organic sensor network with that of other ISR networks to produce its own local COP and to contribute to 'running' estimates. Local processors receive input directly from organic sensors for operational purposes and fuse this information with information from other processors and echelons within the Unit of Action. These process and analyze inputs with organic intelligent assistants, terrain and decision/problem solving tools to enable units to be operationally more efficient and effective in achieving mission, task and purpose. Local COPs are shared and distributed for incorporation with COPs at other echelons of the force.[16]

Analyze. The more sophisticated the adversary and the more complex the environment, the greater the requirement to add context to information through analysis. Information analysis is a crucial component of effective battle command, providing clarity and context rather than paralysis from the vast amounts of data and information that will be available throughout the force. In the UA, commanders must have their own dedicated intelligent assistant designed primarily around rapid understanding of a wide variety of information inputs and providing context for immediate execution, problem solving and decision-making, and short-range planning.

Disseminate/Present. Secure, redundant, communications with multilevel security capabilities enable the exchange of analytical findings throughout the Unit of Action through a series of distributed databases.

4.5.4 Maneuver

The UA is the tactical warfighting echelon of the Objective Force. The brigade and its battalions are optimized for closing with and destroying enemy when forces are joined by: 1) bounding overwatch under contact, 2) fires at standoff and movement not in contact, 3) fire and maneuver, 4) and tactical assault against all threats in any terrain and weather condition. Closing with and destroying includes any form of lethality to engage an enemy with LOS, BLOS and NLOS fires when under observation by an adversary and in contact. Finishing decisively also requires the capability to rapidly exploit success. For example, the UA is expected to follow through the assault without tactical pause to complete the enemy's destruction by exploitation and pursuit.

As commanders collaborate and decide on a course of action, they immediately disseminate their intent to all levels, affording maximum time for subordinate commands to conduct requisite troop leading procedures. The time gained through effective use of innovative battle command technologies and rapid, automation-assisted networks to empower small tactical units in the UA to seize and retain the initiative and execute tactical operations for decisive outcomes. Able to *see first and understand first*, the UA develops the situation out of contact and determines when and where to fight on favorable terms, set conditions (isolate and shape) for one or more engagements, and maneuver rapidly on separate axes to positions of advantage.[17]

What is different about this combat brigade is its ability to execute multiple engagements simultaneously and in rapid succession over a large

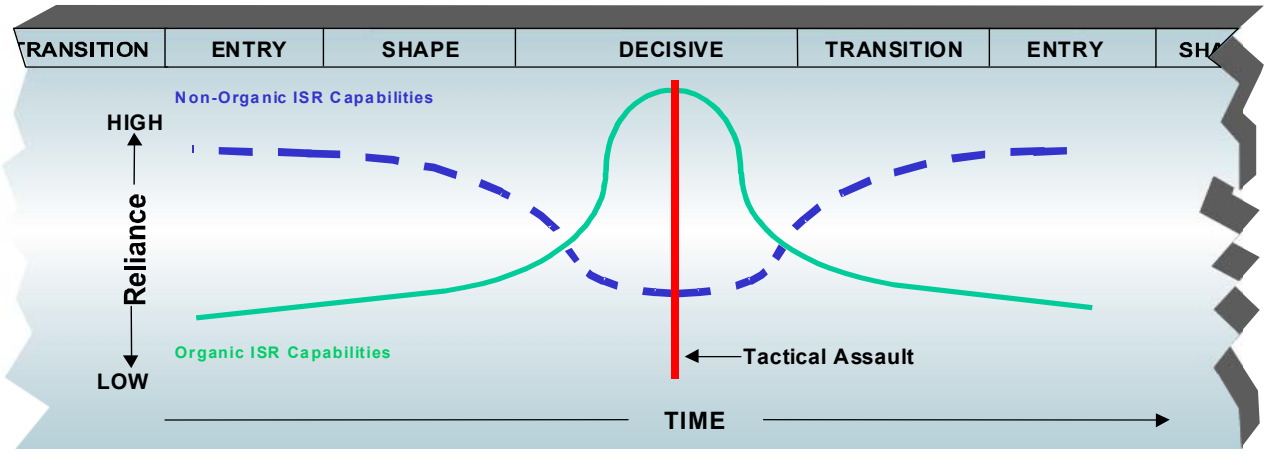


Figure 1 ISR

area of operation. The UA can execute a number of tactical engagements to

complete a brigade battle under time constraints that demand agility, aggressiveness and small unit initiative with clear purpose. The combat battalion is the centerpiece for close tactical combat, enabled by organic maneuver, maneuver support, and maneuver sustainment organizations. Combat battalions fight dispersed and use R&S semi-autonomously. The UA brigade must gain a knowledge base of areas between the battalions to enable this scheme of maneuver.

To meet its demanding deployment threshold and required capabilities, the UA design capitalizes on the widespread use of common vehicular platforms, including highly-mobile, protective platforms, use of advanced technologies in robotic vehicles, and sustainment efficiency that includes new power generation and high fuel efficiency with reduced dependence on petroleum products.

4.5.4.1 Precision Maneuver

Precision maneuver represents a change in the tactical maneuver paradigm. Instead of engaging an enemy force to develop the tactical situation, a commander develops the situation with information, fires and standoff effects. These include ISR and engagements with BLOS and NLOS fires and tactical operations in depth throughout a non-contiguous area of operation to shape the enemy, destroy high payoff targets and maneuver to positions of advantage. The unit conducts tactical assaults directed precisely at high payoff targets and centers of gravity that cause the enemy's destruction. Enhanced situational understanding enables aggressive and agile execution of precision maneuver. Because the commander knows the location and status of all friendly personnel; receives near real time updates on the enemy situation; and understands terrain and how to use it to advantage and deny its use by the enemy through the COP, he is able to identify and exploit tactical opportunities. Enhanced situational understanding allows collaborative planning and dynamic execution of operations through the use of mission orders that are rapidly adapted to the changing situation.[18]

4.5.4.2 Three-Dimensional (3D) Maneuver

Three-dimensional maneuver is the coupling of air and ground maneuver with long-range precision fires – Army and joint -- to impose multiple dilemmas on an opponent to dislocate, disintegrate or destroy an enemy capability. At the tactical level, the UA brigade can execute a ground attack against a tactical center of gravity supported by an air assault of one of its organic infantry companies (see the tactical model in paragraph 4.4.1). The UA brigade can also execute a ground attack in coordination with an air assault by one of the battalions in division against a strategic center of

gravity in urban terrain (see the tactical model in paragraph 4.4.3.2). The purpose of 3D maneuver at the tactical level is to create and exploit assailable flanks and rear of an enemy through vertical or horizontal envelopment or turning movement. 3D maneuver by the UA brigade can also be used to rapidly exploit an opportunity presented by the enemy. When restricted terrain is key but occupied by the enemy, the UA can employ 3D maneuver with Army and joint aviation in close support and air assault one of its infantry companies to the rear of the enemy to unhinge him or set conditions for quick tactical decision. There are many situations in which maneuver would complement getting fires into positions of advantage to destroy high value targets and create conditions for exploitation by air and ground maneuver.

Three-dimensional maneuver can be employed as part of any maneuver operation, from setting conditions to decisive operations in a battle or engagement. With the capability to employ dynamic control measures, aviation assets within the UA and lift assets from echelons above the UA are fully integrated into 3D maneuver to provide capabilities for horizontal and vertical envelopment. Their successful execution confronts the enemy with overwhelming, multi-dimensional dilemmas at depth throughout his force.

These forms of maneuver may not be very different at the tactical level in form, but they are very different in character and scope in the UA. 3D maneuver integrates LOS, BLOS and long-range NLOS fires – Army and joint -- through dynamic airspace management and control, with high tempo air and ground maneuver to greatly expand the area of the close fight. This enables the UA to conduct rapid and effective envelopment, pursuit and exploitation - often near simultaneously with ground maneuver.

Army aviation assets, such as the Comanche and UE lift, conduct reconnaissance, mobile strike and close support of ground maneuver to achieve 3D maneuver. Coordinated with Unit of Action A2C2, mobile strike operations combine Army or joint fires, attack aviation, and external ISR to mass effects in order to isolate and destroy key enemy forces and to shield friendly forces as they maneuver out of contact. From the UA perspective, vertical envelopment is a tactical maneuver in which airmobile troops are, by their initial positioning, able to launch unexpected attacks into the rear and flanks of a force from a position of advantage. These operations in effect cut off or encircle the enemy, creating assailable flanks for exploitation by other maneuver forces and simultaneous engagements.[19]

4.5.4.3 Modes Of Mounted And Dismounted Maneuver[20]

Brigades, battalions, companies, and platoons must be able to conduct all five modes of maneuver:

- Mounted operations enabled by dismounted forces.

- Dismounted operations enabled by mounted forces.
- On occasion, dismounted operations.
- Mounted operations.
- Airmobile/air assault operations.

The commander must be prepared to conduct all four modes of maneuver based on enemy responses to his actions and his task and purpose. Moreover, the Unit of Action brigade, battalions, and companies are able to transition quickly between modes of maneuver as the situation dictates and opportunities arise.[21]

Mounted Enabled by Dismounted

Mounted operations enabled by dismounted FORCES

Mounted operations enabled by dismounted forces are conducted when the Unit of Action faces generally restrictive terrain, such as natural choke points, compartment features or small urban areas, and a threat with mixed infantry and mechanized capabilities, possibly using obstacles. Mounted elements initially provide long-range fires and enhanced mobility at standoff. Mounted forces attack to destroy enemy, while dismounted elements conduct supporting infantry tasks such as clearing defiles and danger areas, conducting reconnaissance, conducting raids and ambushes, and assaulting enemy infantry positions. Air assaults to clear enemy or seize key terrain are also done when required, enabling the advance of mounted forces.[22]

Dismounted Enabled by Mounted

DISMOUNTED OPERATIONS ENABLED BY MOUNTED FORCES

- *Dismounted operations enabled by mounted forces* are conducted when threats with more robust infantry capabilities in more restrictive or urbanized terrain are encountered. Dismounted forces, delivered to the most advantageous position available by air or ground platforms, assault the objective. Mounted forces provide overwatching indirect fires, direct fires in immediate support of infantry, mobility support and maneuver sustainment.[23]

DISMOUNTED OPERATIONS

Dismounted operations will be required in very complex terrain when mounted elements of the unit cannot operate in proximity to the dismounted elements. The UA commander may infiltrate dismounted forces by ground or airmobile an infantry company to conduct a dismounted assault apart from their platforms. The division may airmobile a combat maneuver battalion under the same circumstances. For dismounted operations, organic BLOS platforms can unplug a smaller module with BLOS with LOS assault gun capability to provide direct support to dismounted operations. Modules will be mounted on either a robot or smaller troop carrier. The unit also will have multi-purpose robots that may be armed to support airmobile operations.

Mounted

MOUNTED OPERATIONS

Mounted operations are usually conducted in open, rolling terrain against platform-based threats, employing direct and indirect fires from extended ranges to defeat the enemy. Mounted forces conduct rapid, powerful assaults to take advantage of superior mobility, shock and overwhelming lethality to quickly achieve objectives.[24]

Airmobile/Air Assault

AIR/AIR ASSAULT OPERATIONS

The airmobile/air assault mode is used by elements of the Unit of Action to conduct tactical or operational envelopment of the enemy. The UA can maneuver up to a battalion sized element using divisional Unit of Employment's aviation lift assets.

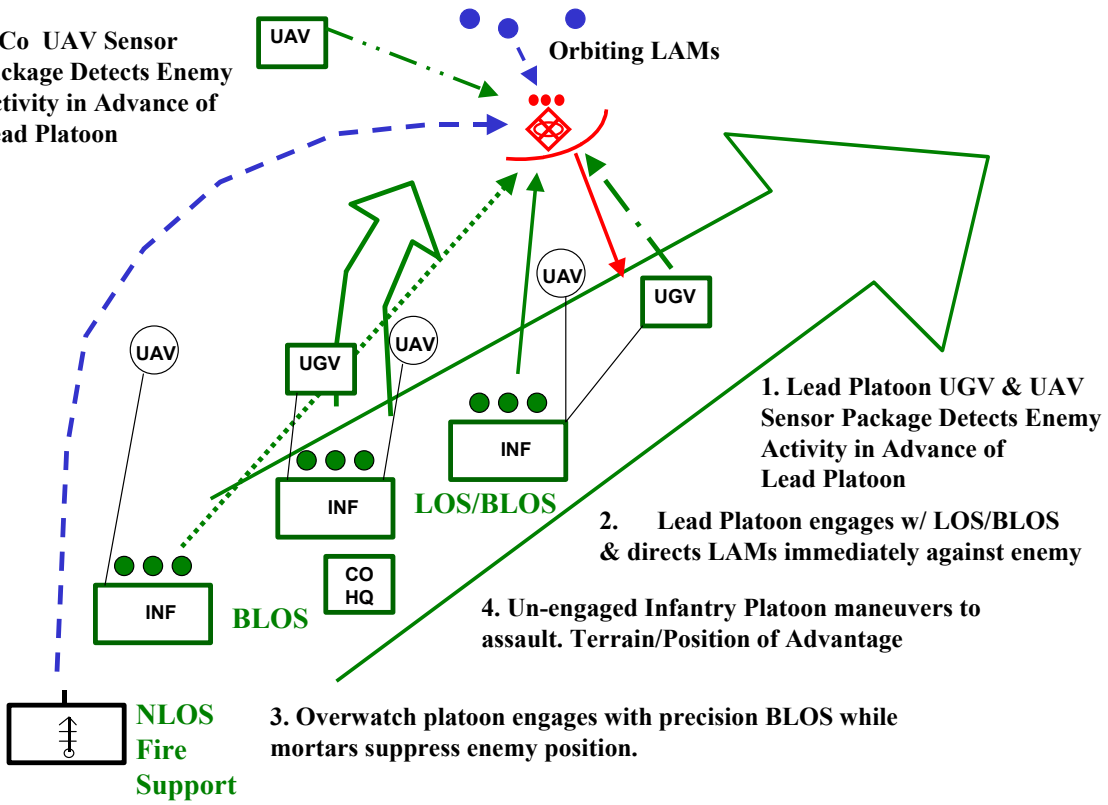
Although a UA may operate in one mode throughout an operation, it will more likely use a combination at various stages of the battle or engagements. It may have sub units that conduct different modes of maneuver as part of the larger effort. For example, a battalion may operate mounted supported by dismounted, but one of its subordinate companies may conduct dismounted operations supported by mounted in an area with more restrictive terrain. A subordinate company in this more restricted terrain may also operate totally dismounted as it pursues enemy infantry into severely restricted terrain. Simultaneously, an air-ground task force conducts air assault of a dismounted battalion to negate effects of terrain, isolate the enemy and expedite tactical decision. The desired endstate is the air assault task force secures its objective by exploiting positional advantage and prepares for link-up in accordance with the ground scheme of maneuver.

In another part of the same battlespace, a different battalion may fight purely mounted in open, rolling terrain against a mounted threat. Thus, each echelon from platoon to brigade must be able to conduct all four modes of mounted and dismounted maneuver and change between them as necessary.[25]

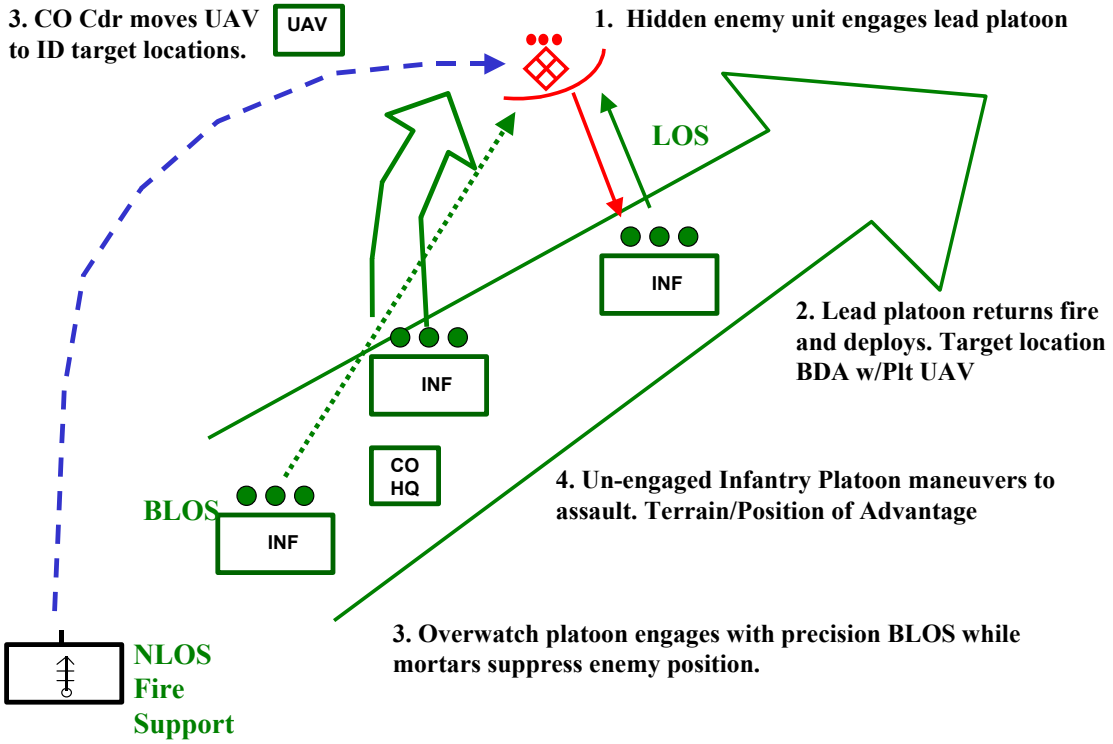
4.5.4.4 Small Unit Illustration

Small units in the Unit of Action must be capable of rapid reaction to unexpected contact. The two situations illustrated below provide examples of how small unit react to contact. In the first, the company sees the enemy before contact. In the second, the company is surprised. Small units must be adept at dealing with both, adapting to enemy actions and counter actions. An example of this situation can be found in the vignettes in Annex F.

REACT TO CONTACT – SURPRISE CONTACT DETECTED



REACT TO CONTACT – SURPRISE CONTACT



4.5.5 Fires

The UA brigade and its small units need organic lethal fires from a combination of air-ground means that are very responsive to engage complex and multiple target sets simultaneously and continuously. Fires must be reliable, timely, and accurate - able to sustain rates of fire and rates of kill continuous availability in all weather and terrain conditions. Organic fires must be able to deliver effects at extended ranges of 30+ km for full coverage, to deny sanctuary in the area of operation, to provide mutual support from dispersed locations, and to rapidly shift striking power across the battlefield and apply the full range of effects - from precision discrete to area - to assure mission endstate. Fire support must be agile to support forces in contact; provide greater target location and weapon delivery accuracies; and rates of fire to get the job done quicker with smaller firing teams and with less exposure as well as rapidly deliver scaleable munition effects to destroy, disintegrate or dislocate enemy forces; ability to shift fires and mission types very quickly (destructive, protective and suppressive, and special purpose).

The UA fires – whether delivered by Army, joint or coalition – will rely on effective reconnaissance and surveillance that can find the enemy and

report accurate target locations, enabling the application of killing power. Fire support is versatile by rapid teaming, task reorganization or tailorability to support maneuver that is adaptive to rapidly changing situations.

4.5.5.1 Effects

Effects are the result of the directed application of lethal and non-lethal capabilities to achieve a desired purpose of outcome in support of the commander's intent. Effects include a broad range of capabilities produced by many systems; they are not merely the result of weapons use. Effects are a component of the operations plan and must be fully integrated and synchronized with the scheme of maneuver.

4.5.5.2 Tactical Fires:

At the operational or campaign level, JTF or UE division executes fires to *shield* critical assets or population centers from enemy long-range precision ballistic missile threats. Once forces are joined, they *isolate the battlefield* by eliminating an enemy's ability to synchronize action, attacking mobile reserves or C2. During transition, the UE *shapes the battlefield* for follow-on tactical engagements or battles. These fires support UA brigade success by achieving favorable COFM for UA movement to positions of advantage and to enter contact at advantage. These fires support the UA brigade during entry, or the brigade's approach to contact or transition from one battle to next. On commitment of UA, the division or JTF immediately shapes the battlefield for follow-on fights. The UA is able to conduct combat operations to close with and destroy the enemy because the UE division shields and isolates the battlespace. The UA brigade executes tactical fires in support of its own R&S and maneuver forces. Tactical fires include three general types: destructive fires, protective fires and suppression, and special purpose fires.

Destructive fires are employed to enable tactical maneuver. These include precise or area long-range fires, Army and joint, to deliver killing blows on enemy capabilities such as mobile frameworks, indirect fire and air defense assets, C4ISR, support systems, etc.. Destructive fires may also be employed in combination with maneuver to gain synergistic effects and present the enemy with multiple, lethal problems to enable tactical maneuver.

Protective and suppressive indirect fires may be lethal or non-lethal fires in close support of tactical maneuver. These include suppression to fix or isolate an enemy, and to prevent him from emplacing accurate lethal fires on the formation; obscuration or screening smoke to preclude observation by enemy, and protection of friendly flanks with smart mines like RAPTOR or HORNET. Protective fires can also support maneuver by

suppressing enemy air defenses and by countering the fires from enemy indirect fire systems. Close support may involve danger-close missions and final protective fires that are designed to bring fires especially close to maneuver formations for ultimate protection.

Special purpose fires include artillery raids, illumination or enemy positions, and neutralization of minefields with NLOS delivered thermo baric effects.

4.5.5.3 Fires Complemented by Maneuver :

The combination of destructive, protective / suppressive, and special task fires provides our forces freedom of action while denying options to the enemy. Integration of fires is absolutely critical to gaining and maintaining the initiative in any battle – and allows us to close with and assault the enemy. There are many situations in which maneuver will complement getting fires into positions of advantage to destroy high value targets and create conditions for exploitation by air and ground maneuver. These generally occur prior to contact. Because of the new expectation of increased killing power of fires at long range prior to forces being joined, we no longer must rely only on maneuver to fix and destroy an enemy. These fires achieve greater destruction at standoff and accomplish decisive outcomes without sacrificing freedom of action or relying on tactical assault as the only solution set.

The ability to 'see first' with a high fidelity of information will be much more effective, yet still very difficult against an enemy who employs operational measures to avoid being targeted. In situations where standoff fires alone cannot accomplish end state, we must close with and destroy our opponent once conditions are set for decisive action.

The Unit of Action leaders visualize where they want to destroy or suppress the enemy. They will develop named areas of interest (NAI) and targeted areas of interest (TAI) to focus the ISR collection effort. High payoff targets (HPTs) are determined to prioritize collection and targeting. Then ISR capabilities are maneuvered to detect, locate, recognize, and identify HPTs. Fires are also maneuvered to locations suitable to deliver killing fires. If successful, these long-range fires will dislocate, disintegrate, or destroy the enemy, creating an opportunity for the UA to transition to exploitation or move to positions of advantage to complete the enemy's destruction by tactical assault.

4.5.5.4 Fires Integral to Combined Arms Maneuver:

At the tactical level, once contact occurs, fires must be fully integrated in support of maneuver continuously, not sporadically. For as long as ground forces are in contact, they need responsive and timely fires that are available immediately on demand against opportunity targets, with full coverage in any

weather, 24 hours a day, seven days a week. Tactical fires often require volume area effects over time to assure freedom of maneuver, degrade enemy reaction, and protect forces in contact. It is especially important that tactical fires be flexible. The reality of combat is that no plan survives the first shot. The enemy is trying to win too, and his actions force our formations to adapt; either to take advantage of opportunities as they appear or to counter enemy actions. These fires must be able to rapidly shift striking power across the battlefield to provide responsive and continuous support to our maneuver forces.

Today, there is by design, a desirable synergy when employing fire support systems among the services in combination from to meet the full range of threat and conditions of the battlefield with appropriate responsiveness and lethality. Traditionally, mortars, cannon, missiles, rockets, Army aviation, joint fires and airpower have provided fires in support of maneuver. Each system has unique contributions and limitations. Improvements in joint interoperability will allow us to rapidly apply those best suited to the situation with greater agility than we have today. These systems must contribute to several essential qualities. They must be lethal in terms of responsiveness, accuracy, and munitions effect. The effects must be reliable to engage complex target sets immediately on demand with 24-seven availability against targets of opportunity in all terrain and weather. When needed, fires must be simultaneous and continuous to impose multiple problems on the enemy from a combination of air and ground delivery means. Finally, fires must be agile and able to shift rapidly between missions.

The continuous nature of land combat (not allowing our adversary a pause); requires destructive, protective and suppressive fires throughout the depth of the battle space, continuously and sometimes simultaneously. While it would be desirable to isolate tactical engagements in time and space and treat fires as discrete occurrences, the reality is that different fires are often needed at the same time, but at different places -- all providing support to maneuver. In the UA, fires must be able to support multiple demands simultaneously to this end.

In the UA, we want our formations to have freedom of maneuver and deliver killing blows without having to become decisively engaged. What is new is that fires in support of tactical maneuver can achieve greater destruction at standoff to the enemy without having to rely on tactical assault as the only solution to achieve decision. In situations when standoff fires alone cannot accomplish endstate, we must close with and destroy our opponent once conditions are set for decisive action.

4.5.5.5 Networked Fires Changes the Dynamics of Indirect Fire Support.

Networked Fires is a system of systems that will provide future commanders real-time capability to apply full dimension effects solutions across the battlespace. It is fully integrated and interdependent with Army, joint, multinational, and interagency sensors; effects-generating systems and capabilities; and information technology systems. Networked Fires is a purpose-oriented, execution-focused, networked capability optimized to provide a broad range of lethal and non-lethal effects against enemy decisive points and centers of gravity in concert with maneuver and support operations. It enables the commander to dynamically apply fires and effects, on demand, to any echelon, in support of combined arms and joint operations in any operating environment.

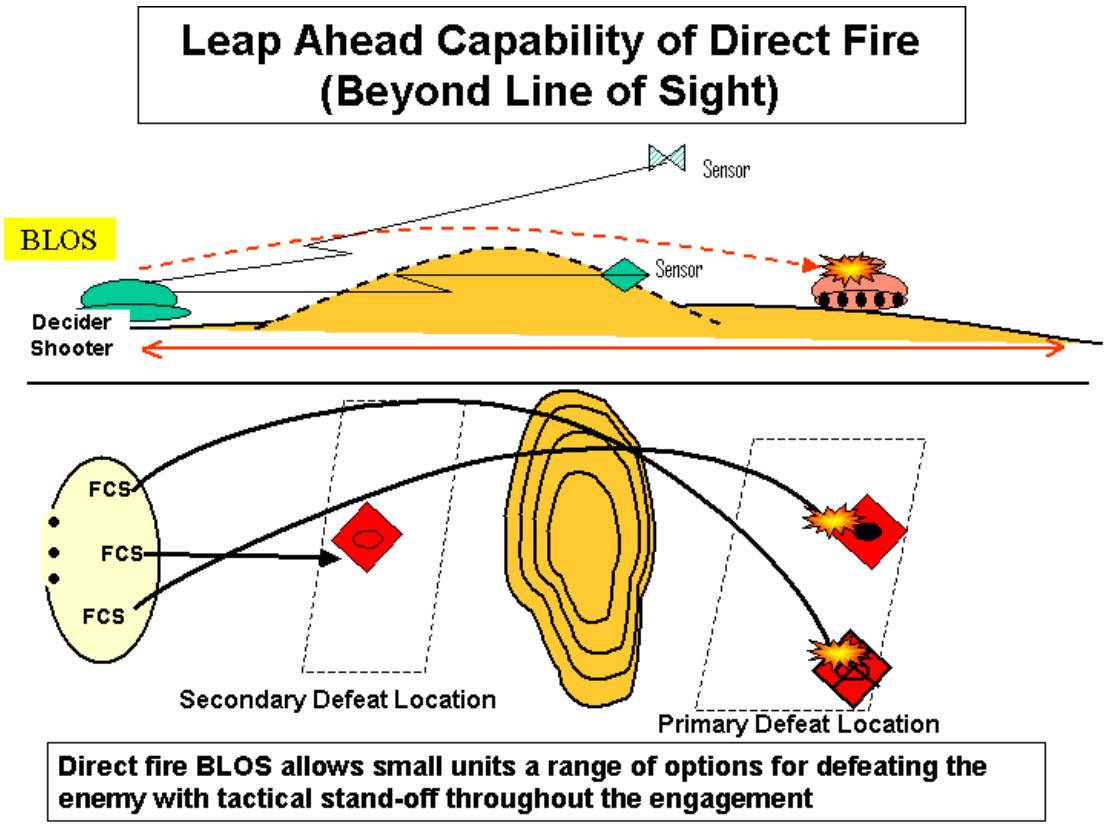
Teaming by ISR and indirect fire systems dispersed throughout the battlespace and by small tactical units fully integrated with maneuver is critical. The requirements for such a capability must be achieved by a system of systems framework. It is critical that an enabling, integrated networked fires system-of-systems solution, leveraging a wider set of capabilities including sensors, command and control, and attack means from Army, joint and multi-national forces, be pursued to provide the operational capability required today and in the future.

4.5.5.6 Unit of Action Fires

The construct for the Unit of Action integrates fires with maneuver in a manner defined by the relationship of the sensor, the decider, the shooter, and the target instead of the trajectory of a round. Fires are categorized as line of sight (LOS), beyond line of sight (BLOS), or non-line of sight (NLOS). Engagement range is not directly tied to the definitions of LOS, BLOS, and NLOS fires. Thus, the method used, rather than the range, determines the type of engagement. However, as a general guideline, LOS engagements occur at a maximum range of five km, BLOS engagements occur up to 12 km -16 km and NLOS engagements in the Unit of Action occur out to 30+ km and are extended throughout UA area of operations with joint and army fires. Some future combat systems may have the ability for more than one method (e.g. LOS and BLOS).

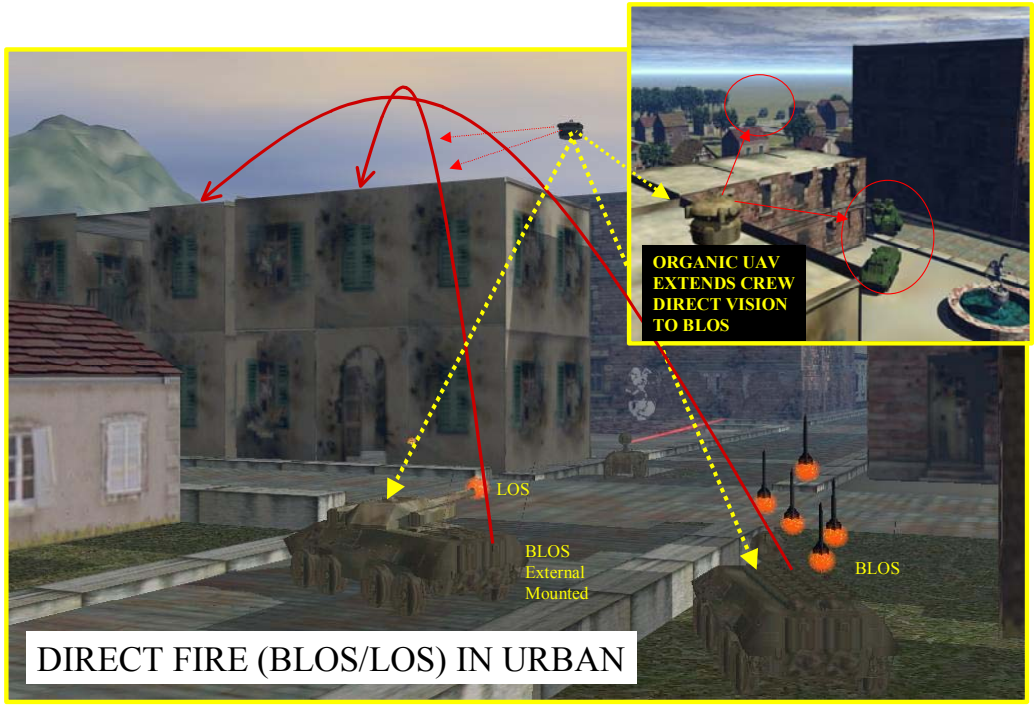
Direct Fire (Line of Sight) is the traditional form of fire used by assaulting elements as they conduct fire and movement to close with and destroy an enemy. The target in a direct line-of-sight (LOS) engagement is not masked from the Soldier manning the weapon. The sensor, shooter, and decider are all resident with the combat system engaging the enemy target. Line-of-sight fires characterize most dismounted weapons and weapons employed by elements in the assault; they have the advantage of “point and shoot” immediacy against targets that can be directly seen or sensed from the

combat platform. The masking effects of terrain, however, limit both the range and fields of fire available for line-of-sight engagements.



Direct Fire (Beyond Line of Sight) is an extension of the traditional direct fire. Direct fire BLOS enables standoff engagements at greater ranges and also opens up fields of fire previously denied to elements conducting the assault due to the restrictions of intervening terrain. To achieve direct fire BLOS, the Soldier or crew exploits mobile or other sensors organic to their echelon to extend their direct vision to beyond line of sight. Advanced sensor capabilities networked to soldiers and crews enable target acquisition, identification, and engagement without line of sight visual confirmation. This allows the direct fire method to be employed with high angle weapons that fly over terrain masking. The extension of direct vision combined with weapons that can fire both BLOS as well as LOS permits the soldier or crew to close with the enemy and engage targets in the assault at greater standoff range and without the need for anyone to adjust their fires onto a target or to decide what targets they should engage. Assault platforms conducting these types of engagements also exploit targeting information generated from external sensors and available on the common operating picture (COP) of the battlefield to further enable direct BLOS engagements. Beyond-line-of-sight

fires allow the combat battalion's fighting teams and systems to use terrain masking for protection.



Indirect Fire Support (Non Line of Sight)(NLOS) includes current methods where a sensor or decider directs the firing platform to engage targets in a demand for fires methodology. The Soldier or sensor identifies a target and passes a fire mission through the fires network to another Soldier/weapon. The other Soldier/weapon fires on the target without seeing/sensing the target based on the sensing of the requestor. The networked environment of the Unit of Action allows for an electronic target handoff to other weapons within the fighting team or to a weapon external to the fighting team. Likewise, an FCS firing element can handoff a target to another FCS when it has acquired more targets then it can handle or when it cannot reveal its position. Networked indirect fire support could also be used to handoff targets from external units (aviation, for example) to NLOS weapons. Indirect Fire Support capability in a networked organization increases the options for integrating organic and supporting fires in new ways, and in real time. The capability for indirect fire support (NLOS) at the battalion level enables the battalion's increased tactical reach.

While direct fire line-of-sight continues to be critical to close combat assault, it is the new capability for direct fire beyond-line-of-sight that enables assault elements to fire from standoff over intervening terrain, continuing assault fires throughout the attack. The primary defeat location

shifts from engagement areas within the line of sight of the fighting teams to terrain compartments beyond their line of sight, where the enemy's LOS weapons cannot respond.

4.5.5.7 Integration and coordination of NLOS Fires

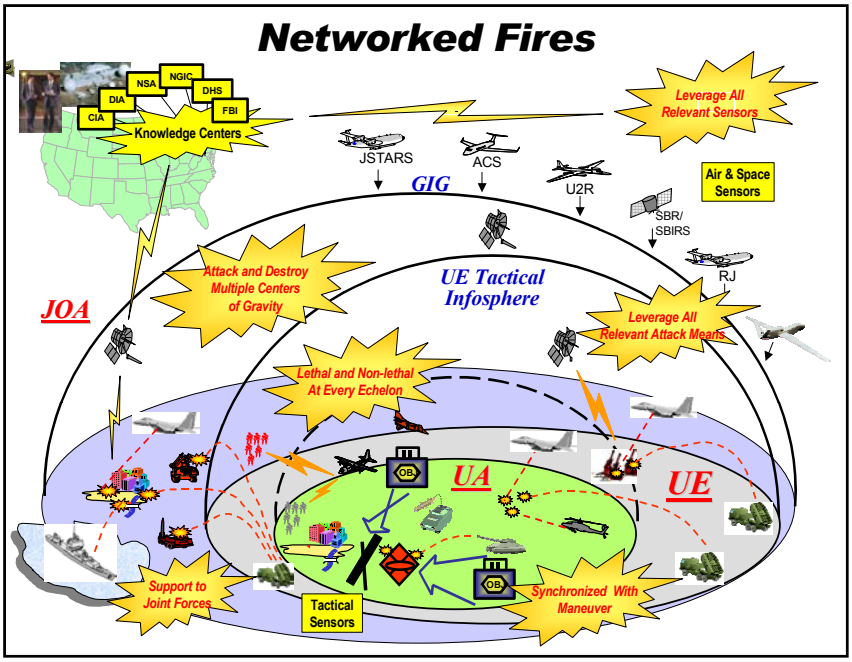
NLOS fires must be fully integrated and very responsive to the needs of maneuver units. The UA fire support design is optimized to support small unit operations. Fire support plans empower opportunistic, on-demand needs for fires that are fully integrated with maneuver.

The implications of NLOS fires are significant. First, it applies a wider range of capabilities combined with the effects of maneuver against the enemy to achieve decision. It changes our focus from attacking specific weapon systems to a more precise application of a broad range of NLOS fires and other non-lethal means to achieve synergistic results against key nodes of the enemy's system. Second, effects-based fires are less concerned about delivery systems, their locations, and associated command and support relationships. In this effects-based environment, tasks and priorities may be serviced by any fire system capable of meeting the needs in terms of timeliness and outcomes.

Effects-based fires, enabled by the network of the larger battle command system and fully integrated with the effects of maneuver and other capabilities resident in the UA, provides the tools to more rapidly and effectively achieve end states in relation to the commander's operational objectives. This allows the application of a wide range of effects from variety of sources—Army, joint, and multinational.

4.5.5.7.1 NLOS FIRES

The Unit of Action has organic NLOS fires capabilities that are more easily tailored for a wide range of requirements. When operating as an entry force, the UA's organic systems are integrated with joint fires and other effects, coordinated through the higher employing HQ. The UA employs NLOS fires in concert with other effects, such as information operations to protect the force, shape the battlespace, and support decisive operations. Integration of these capabilities within a cohesive plan of operations generates a synergy of results that exceed the application of the parts in isolation.



Maneuver platoons have organic beyond line of sight (BLOS) systems that provide precision effects at extended ranges. Battalions have organic NLOS mortars that employ precision guided and other traditional munitions. Missiles-in-a-box provide the capability of delivering precision missiles (PAM/LAM). Combined arms battalions also employ missiles-in-a-box to enable the battalion commander to set the conditions for company engagements. Finally, the brigade has an organic NLOS cannon battalion and the capability to employ missiles in a box. All echelons have ***direct*** access to Army and joint effects through networked fires.

Networked fires includes the triad of relevant sensors, NLOS fires capabilities (to include access to joint), and battle command that enables dynamic, on-demand, NLOS fires to achieve the UA and subordinate commander's tactical objectives. Networked fires applies effects-based solutions to achieve the commander's objectives through the integrated application of lethal and non-lethal munitions and other effects. It operates within the larger battle command system to develop integrated strike solutions while applying the supported commander's intent as the "Decider." It fully leverages all relevant Army, joint, national and multinational sensors to locate and strike targets with a wider set of lethal and non-lethal effects exploiting the capabilities of the entire force.

The UA brigade is the primary coordinating and integrating element for NLOS fires from organic UA, UE, Army, joint and multinational assets in support of the tactical fight. The fire and effects cell exploits networked sensors, delivery systems, and effects to provide the commander with the broadest possible range of options and capabilities in response to an ever-changing situation. The fire and effects cell accomplishes this by applying the commander's objectives for NLOS fires as parameters in the network. This allows the UA commander to establish, alter, and terminate direct and

indirect sensor-to-shooter linkages on demand based on changing priorities without lengthy prior coordination or organizational reconfiguration. The fire and effects cell rapidly plans, coordinates, synchronizes, and manages, in parallel, the delivery of organic and supporting NLOS fires and selected non-lethal effects across the networked force. The UA brigade fire and effects cell must as a minimum:

- Advise the commander on the capabilities of friendly and enemy fires and effects assets.
- Develop targeting priorities and attack criteria to meet the commander's guidance and intent.
- Develop the brigade scheme of supporting NLOS fires to support the maneuver plan, meet the commander's intent and accomplish the mission.

4.5.6 Maneuver Support

As a major integrating area for Objective Force operations, maneuver support enables, enhances, and protects the strategic, operational, and tactical freedom of action of the force by shaping, leveraging, or mitigating the effects of the operational environment at the right time and place, while denying comparable freedom of action to the adversary. Maneuver support applies seven imperatives to carry this out for the force:

- Understand the Battlespace Environment. Real-time understanding of the environment (space, air, water, land, subterranean), including terrain, weather, infrastructure, hazards, populations, and their interaction, impact on operations, and options to leverage or mitigate effects, tailored to the commander’s needs.
- Enable Theater Access. Provide proactive means to ensure forces can deploy and freely enter theater of operations by enhancing entry capabilities and infrastructure, mitigating adverse effects of the environment (terrain, weather, enemy action, infrastructure, hazards, local population), and protecting/facilitating multiple PODs, LOCs, and theater entry points.
- Provide Assured Mobility. Actions that guarantee the force commander the ability to deploy, move, and maneuver where and when he desires, without interruption or delay, to achieve his intent.
- Deny Enemy Freedom of Action. Proactive measures to leverage the physical environment to isolate enemy forces, deny key terrain, and deny, impede, or canalize enemy movement in order to protect friendly forces and their freedom of action, and to place enemy forces in positions of disadvantage.

- Enable Force Protection and Security. Layered and integrated protection of the force through proactive attack, defensive, and standoff measures that tie together point and area protection of nodes and operating areas; this includes cueing and early warning to the lowest levels.

- Engage and Control Populations. Provide the necessary control over diverse populations to ensure maneuver, support, and sustainment forces are unencumbered in the conduct of their respective operations (populations range from EPW, detainees, internees, refugees, and disaster evacuees).

- Neutralize Hazards and Restore the Environment. Reduce or eliminate the operational impact and effects of a full range of environment-based hazards through avoidance, mitigation, neutralization, and, when necessary, restoration of the environment to acceptable safety levels.

All seven of the maneuver support imperatives apply at the tactical level of war and support the UA. Major emphasis in all Unit of Action operations is placed on enabling and amplifying friendly maneuver and force protection, while creating conditions unfavorable to enemy maneuver and protection. A maneuver-based force realizes significant synergy through the close orchestration of the freedom of maneuver and force protection components to maneuver support. This is particularly true when such a force directly associates movement and maneuver as a means to enable force protection and survivability at the tactical and operational levels. These, in turn, are closely linked to the opportunities and challenges derived from the physical environment -- including terrain, weather, infrastructure, natural and man-made hazards, population presence (and the interaction of all of these factors) that will enable friendly maneuver and force protection, that will affect enemy maneuver and force protection, or that can be denied to enemy exploitation.

For the UA, maneuver support capabilities are applied to enable secure tactical maneuver to objective areas; shape and isolate AO's and objective areas; and protect and secure key force assets. Layering throughout the force provides the full range of maneuver support capabilities. These encompass embedded capabilities on UA platforms and with Soldiers, linkages to functional experts, sappers in the combat battalion to perform mobility reconnaissance, and tailored force packages of modular maneuver support units to augment or team with UA and weight efforts of the Unit of Employment. Enablers are gap crossing capability resident at division, unattended intelligent ground sensors and munitions, networked communications and cooperative networks, unmanned and manned air and ground platforms.

3371 4.5.6.1 ASSURED MOBILITY

3372 Assured Mobility involves those actions that guarantee the Unit of
3373 Action commander the ability to deploy, move, and maneuver in all types of
3374 terrain and weather, where and when he desires without interruption or
3375 delay to achieve his intent.[26] It must also deny the enemy his assured
3376 mobility. The following nested and overlapping functions focus actions and
3377 assets on mitigating the risks of impediments[4] to maneuver.

3378 • Initially, the staff predicts the circumstances that could affect the
3379 ability of the force to maintain momentum.

3380 • The staff focuses intelligence, reconnaissance and surveillance assets,
3381 processed, fused, and displayed as air and ground situational awareness, to
3382 detect indicators of impediments to battlespace mobility early; identifying
3383 alternatives and establishing surveillance.

3384 • The commander chooses to act early to prevent identified potential
3385 impediments to maneuver from affecting battlespace mobility of the force.

3386 • If prevention fails, he identifies alternatives to avoid detected
3387 impediments to battlespace mobility.

3388 • Finally, if required, he will neutralize, reduce, or overcome
3389 impediments to battlespace mobility that cannot be prevented or avoided.

3390 There are four main implied tasks for assured mobility: develop the
3391 situation; select, establish, and maintain operating areas; attack the enemy's
3392 ability to influence operating areas; and maintain mobility and momentum.
3393 These four simultaneous tasks allow the commander to mitigate impediments
3394 to mobility from standoff and greatly reduce the likelihood of traditional
3395 breaching or neutralization.

3396 *Develop the Situation*. This is the collection and integration of
3397 imagery and geospatial information, cultural, and enemy information, aided
3398 by automated terrain analysis and situational understanding tools that bring
3399 to life terrain such as OCOKA, trafficability and mobility aspects in a COP
3400 for the operating area. This information presentation must allow leaders
3401 from brigade commander to platoon leaders and their sergeants, to under-
3402 stand the totality of the terrain, what it means and how to leverage it to
3403 tactical advantage; and how to deny its advantage to the enemy. We seek
3404 automated terrain visualization production and dissemination. Part of this
3405 may be tool that quickly produces a modified combined obstacle overlay
3406 (MCOO) and publishes the mobility course of action. This MCOO can be

[4] Impediments include physical obstacles, countermobility systems (mines), Chemical Radiological, Biological, Nuclear (CBRN) hazards, and civilian population concentrations.

dynamically updated as natural and man-maid alterations to the terrain or through R&S reporting and maneuver analysis occurs. The mobility aspects of the COP identify the operating areas and the mobility issues within those areas for the maneuver plan. [27]

Select, establish, and maintain operating areas. With the aid of automated tools, critical mobility choke points, operating areas, and airspace are identified and a shaping plan is developed before movement and en route to the AO. This plan includes prediction of enemy actions and required sensor coverage to fill any information voids within the operating area. Through this proactive process, R&S may be assigned the role of "staring" at critical areas to fill the voids or improve our situational awareness. In coordination with sensor effects packages, the ability to predict, detect, prevent, avoid, and neutralize the enemy's ability to emplace or use mines and booby traps from standoff positions sets the conditions for mobility situational understanding. For critical choke points, such as bridges, sensor packages linked with brilliant munitions form an active protective system to eliminate the enemy's attempt to influence or degrade these critical points. The ability to control and monitor critical mobility areas is key to coordinating a mobility plan in conjunction with the scheme of maneuver.[28]

Attack the enemy's ability to influence operating areas. This task includes the specific actions to be taken to preclude, deny or prevent enemy maneuver and facilitate the UA's movement. The commander proactively attacks those enemy systems capable of directly or indirectly impeding friendly maneuver, thus destroying route interdiction capability before it occurs. Effects to accomplish this task include precision fires and munitions, obstacles, attack by aircraft, etc. Precision munitions (all types) and dynamic obstacles (Integrated Mine Systems) are an effective and useful method of hindering the enemy's freedom of movement. Sensor suites tied to point munitions and networked fires are also employed to protect freedom of maneuver once it is established in key operating areas or along key routes.[29]

Maintain mobility and momentum. Most mobility impediments will be mitigated though prediction, detection, and prevention. Obviously, if operationally feasible, impediments to maneuver will simply be avoided. There will be situations in which operational requirements dictate negotiation of impeded routes, which would be accomplished with UE augmentation. Based on future combat system survivability to anti-personnel mines and some CRBN hazards, the commander may choose to simply detect and move through the area.[30]

4.5.7 Maneuver Sustainment

The UA will deploy with sufficient supplies to conduct 72 hours of high tempo operations. This self-sufficiency greatly enhances the Unit of Action's

agility, versatility, and lethality. To maintain combat power within the UA, the Forward Support Battalion (FSB) organic to the UA, will conduct synchronized sustainment pulses to the combined arms battalions and other subordinate elements as the maneuver commander cycles battalions through the sustainment process.

Strategic and operational-level sustainment operations will begin to merge as deployment and sustainment operations are conducted from strategic distances. This requires that strategic lift be "operationalized" by combat-configuring units and equipment, and sustainment stocks at the port of embarkation to be ready to fight on arrival at the tactical point of entry. This form of operational maneuver from strategic distances is applicable to the lead elements of the response force. As the theater matures and as in the past, strategic air and sea lift will be optimized for the most efficient use of strategic lift in terms of capacity utilization.

In the past, the most critical sustainment seam has been between the strategic and operational-levels where the reception, staging, onward movement and integration process reassembles the force after arrival in the joint area of operations. Any interruption of this process could cause catastrophic effects to generating combat power. In the Objective Force, this vulnerability is greatly reduced, but not eliminated, through rapid insertion and transloading of sustainment stocks at tactical points of insertion. To further mitigate risk, the UA requires enhanced, organic sustainment capabilities as described below.

Maintenance. Every platform requires a crew chief who can fix the majority of 'plug and play' problems identified by onboard prognostic and diagnostic systems and maintain the vehicle in an overall state of high readiness. The crew chief is responsible for operator, organizational and some DS maintenance supported by rapid response combat repair teams that either fix or evacuate the vehicle, as necessary and permissible by the tactical situation. These teams are capable of performing selected maintenance tasks (selected component replacement, etc.) above the capability of the crew chief. The combat repair team also possesses limited battle damage assessment and repair (BDAR) capability to enable the combat commander to keep systems functional for immediate mission completion. The platform crew is responsible for initial recovery requirements (self-recovery) with another platform or the combat repair team performing secondary recovery (like vehicle recovery).

Medical. Every platform has a combat lifesaver with enhanced skills over the current level of training for combat lifesavers. The combat lifesaver is supported by medics from the battalion, brigade, and UE levels for treatment and evacuation beyond the capabilities of the combat lifesaver and UA medics.

Sustainment preparation of the battlespace. Sustainment planners will continuously manage combat power and unit readiness electronically via the common operational picture and continuously update the sustainment estimate. They will seek to procure as many supplies as possible within the theater of operations using host nation support and contracted supplies in order to reduce demand on US strategic and intra-theater transportation assets. Examples of locally available stocks include ground transportation, water, barrier material, and selected medical supplies. Sustainers also maintain rigorous, rapid control of the arrival sequence for critical resources not locally available (for example, ammunition and repair parts).

Aerial re-supply. UA maneuver sustainment operations will leverage aerial sustainment platforms as a primary means of providing responsive and agile support from multiple locations within the theater of operations. Intra-theater lift assets and delivery platforms, such as short take-off / landing aircraft, precision guided parafoils, manned/unmanned aerial vehicles, and airdrop are used in conjunction with inter-modal platforms and ground transport capabilities to provide momentum and continuity of sustainment throughout the battlespace.

Ground re-supply. The combatant commander will not be required to maintain a continuously secure main supply route (MSR). Instead, sustainment pulses will move to mission staging sites (MSS) or sustainment replenishment sites (SRS) for replenishment. Lines of Communication (LOCs) and their protection will now be at specific times and places instead of being continuous. Mission staging is an intense, time-sensitive operation which includes all preparations for an upcoming mission: planning, troop leading, rehearsals, training, reconnaissance and surveillance, reorganization, tailoring for next mission, information operations, etc. to ensure mission success. Sustainment replenishment can be deliberate or hasty depending on the circumstances. This replenishment operation provides arm, fuel, fix, medical support, and personnel replacements to meet the immediate needs of the maneuver commander.

In terms of both re-supply and maintenance, future combat system (FCS) platforms are the UA's most critical sustainment enabler. The ability of the UA to be self-sustaining depends greatly on the qualities of the FCS to be able to carry 72 hours of sustainment, generate water, reduce demand for fuel, and employ weapons with precision hit and kill capability (thus reducing the demand for extensive ammunition re-supply). Moreover, FCS ability to electronically report their fuel, ammunition, supply, and maintenance status to remote sensors will greatly increase the ability of the sustainment system to anticipate and provide sustainment at the critical place and time. The UA platforms must have inherent reliability characteristics. Specifically, FCS and other UA platforms must conform to a concept of "pulse reliability" whereby the systems, through highly reliable and redundant components, are

capable of achieving the requirements associated with various mission pulses. Additionally, when a system does need repair, it should be designed in such a manner (modular components, common across platforms) that units are capable of quickly maintaining the system and increasing operational availability.

The UA brigade will receive some support from the Area Support Group (ASG) out of UE division, particularly for aerial sustainment. The majority of sustainment support will come from the UE corps with stocks being throughput to an SRS/MSS to limit double handling and reduce the requirement for supply support activities (SSA) at each echelon.

4.6 ENABLING TACTICAL CONCEPTS

Based on analysis of the brigade mission sets and the developmental organizational design, a number of new enabling tactical concepts emerge that are significantly different in their application:

4.6.1 Battalion And Brigade Enabling Tactical Concepts

- **Perform Entry Operations** – Brigade and battalion leaders plan and maintain situational awareness while enroute. The brigade orchestrates the arrival of battalions at multiple points of entry, offset from major ports and airfields when possible. Battalion elements arrive ready to fight; deploy on multiple axes to execute assigned tasks.
- **Develop the Situation** – The brigade develops the situation before forces are joined, using organic means, troops in contact, fused with external C4ISR to achieve the fidelity required to make combat decisions and act first. The brigade leverages joint and space capabilities to do this.
- The brigade retains the capability to develop the situation in and through contact when the situation demands.
- **Synchronize ISR, fires, maneuver, survivability, leadership and logistics** -- Brigades synchronize and support battalions fighting in simultaneous and sequential engagements. Brigades weight the main effort with external and organic capabilities and shift the main effort on the network.
- **Set conditions and isolate the objective from enemy reinforcement with destructive fires.**
    - Employ precision acquisition and fires to prepare the battlefield by destroying enemy at tactical standoff.
    - Integrate close supporting fires with maneuver, employing Army and joint enabling capabilities.

- Identify and destroy high payoff targets – brigade and battalion echelons focus on high payoff targets to set conditions for small unit tactical success.

- **Maneuver forces to positions of advantage** – Companies move on separate lines of operations to assigned objectives. Battalions synchronize and support the maneuver of subordinate companies on multiple axes to the battalion's engagement. Battalions conduct fire and maneuver with subordinate companies**.**

- The brigade and its battalions can conduct all five forms of maneuver; envelopments, turning movements, and infiltrations become more common, given increased levels of situational understanding.

- **Integrate air in roles of reconnaissance and close support of ground operations** – The brigade integrates the capabilities of the Aviation Detachment with UAV's and the maneuver of the battalions.

- **Conduct Battle Command on the Move** -- The brigade and battalion use two command groups and a mobile CP, each capable of exercising battle command on the move. Brigades and battalions maintain a level of situational awareness and situational understanding to control fires and prevent fratricide.

- **Maintain and employ tactical reserves** – The brigade and battalion echelons normally maintain a small reserve; the size of the reserve increases as situational awareness decreases. The commander can employ maximum effects without committing his reserve and has the ability to dynamically retask if required. Reserves are not normally used at small unit levels.

- **Build and sustain combat power --** The brigade uses pulsed logistics to resupply battalions. The brigade uses a combination of air and ground resupply. The brigade and its battalions can fight for three days of high intensity continuous combat w/o resupply; up to seven days in lower intensity situations. The brigade maintains operational momentum by cycling combat battalions in and out of contact. The brigade transitions battalions between engagements, conducting mission staging when necessary.

4.6.2 Small Unit Enabling Tactical Concepts (Company And Below)

- **Develop the situation** – Small units develop the situation in and out of contact, focusing on the terrain compartment they are in and in adjacent terrain compartments to see first and prevent surprise. Small units disseminate combat information from troops in contact to higher echelons and horizontally to other units that need the information to the level of fidelity needed.

- **Tactical positioning using movement techniques** – Small units must be competent in using all movement techniques. Increased situational understanding enables decisions that maximize momentum while maintaining security on the move. In bounding overwatch, the BLOS commander is actually providing overwatching acquisition linked to a zone or NAI. Systems-engineered into formations is mutual support with far greater coherency to create kills based on targets of opportunity encountered during movement.
- **Control, distribute, and integrate direct and indirect fires to**:
  - Destroy most dangerous targets – Small units focus on most dangerous targets, using networked external and organic fires.
  - Determine combat identification to prevent fratricide – The combination of situational awareness, organic sensors, and forward presence by small unit leaders enables them to make combat identification decisions.
- **Achieve Mutual Support by:**
  - New overwatch techniques – Given the increase in mounted and dismounted weapons ranges, small units can overwatch at greater distances and also while moving, making traveling overwatch possible until contact is made.
  - Cooperative engagement between lines of operation – Small unit BLOS and NLOS systems permit mutual support between small units operating on dispersed axes; the network enables fire control and distribution between separated units.
- **Execute survivability measures to include avenge kill**[5] – The integration of sensors across multiple echelons with precision LOS, BLOS and NLOS fires enables immediate reaction to surprise fire from the enemy.
- **Integrate air and ground in close, compartmented terrain** -- The brigade's aviation detachment and other supporting Army and joint aviation can communicate with and collaborate with UA small units. Small unit air-ground combinations can be commanded by either the air or ground element; control of fires can be passed between elements on the network.
- **Conduct Battle Command on the Move** – Small unit leaders command from FCS C2 or combat vehicles or dismounted; all leaders can command while dismounted, maintaining connectivity to the network. Small unit leaders can use the network to integrate ISR, maneuver, and fires.
- **Conduct Tactical assault mounted and dismounted** -- Situational awareness and understanding allow small units to see the objective area,

[5] Define avenge-kill

exploit enemy vulnerabilities and reactions, and assess battle damage. The small unit maintains continuous sensor coverage throughout the assault. Networked small units mass effects to create lethal overmatch. They use assaulting fires on the move. Precision fires and situational awareness change 'danger close' parameters. Rapid gunfire lethality with KE overmatch provides assured first round kill of most dangerous targets. Small units can use all four modes of mounted and dismounted maneuver to execute assault. Dismounted elements use fire and movement to finish the assault. The tactical assault is characterized by small unit initiative using decentralized execution with mission orders, synchronizing multiple actions on the move against a complex enemy.

- **Build and sustain combat power** – Small units treat and evacuate wounded using combat lifesavers and EMT-like medics. Dismounted elements are resupplied every 24 hours to maintain operational momentum.

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[1] SoRC: C-6, C-7

[2] SoRC: C-7

[3] SoRC: B-4

[4] SoRC: C-5

[5] SoRC: B-4

[6] AUTL 7.6

[7] AUTL 2.2

[8] SoRC: C-7

[9] SoRC: B-4, C-5

[10] SoRC: A-5

[11] SoRC: C-5

[12] SoRC: C-5

[13] SoRC: C-5

[14] SoRC: B-5

[15] SoRC: B-5

[16] SoRC: B-5, C-5

[17] SoRC: C-8

[18] SoRC: C-5

[19] SoRC: A-5

[20] SoRC: C-9

[21] SoRC: C-9, C-14

[22] SoRC: A-5, C-9, C-14

[23] SoRC: C-9, C-14

[24] SoRC: C-9

[25] SoRC: C-9, C-14

[26] SoRC: C_8

[27] SoRC: C-5

[28] SoRC: B-4, C-10, C-11

[29] SoRC: C-10, C-11

[30] SoRC: C-8, C-10, C-11

CHAPTER 5 DOCTRINE, TRAINING, AND LEADER DEVELOPMENT IMPLICATIONS

5.1 INTRODUCTION

Considering the time required to affect change in these categories, we are compelled to anticipate and prepare for change now if we intend these areas to progress and synchronize with the transformation of the Objective Force. Within the UA formation, we are resurrecting the quality of the contribution of tactics in doctrine, training and leader development. Although these areas have always been considered to be important, the requirements of the UA place an even greater emphasis on the qualitative contributions they historically provide. We must revaluate our business practices to produce a clear road map for accomplishing the changes required in these areas.

Because of the combined arms framework of the UA, it is essential to develop Soldier and leader skills and a high level of unit cohesion. Leaders must understand how this formation achieves overmatch through teaming, networked situational understanding, and precision of assured first round kill. Fundamental tactical competencies will be key to readiness of the UA formation. We are talking here about a new level of *competency in leaders* enabled by technology for efficiency and effectiveness. We are looking for leaders who have guile, courage, and are tactically smart. In our professional Army all-volunteer force, we are expecting a new *competency of unit*.

The UA is organized around fighting teams who are competent and capable at the collective level. Soldiers in the UA, working more effectively as a team and with each other, rather than as individuals or in stove-piped systems, are at the core of agility during tactical operations. Leaders must be skilled in synchronization and coordination, able to dominate in the realm of tactical decision-making, and be combat proficient at the collective level. UA leaders must have a competency in the variables of terrain, enemy, weather and our own capabilities. They must know how to leverage terrain to achieve positional advantage, how to achieve freedom of maneuver through the use of terrain for cover and concealment, how to integrate maneuver and fires, and how to reconcile tactical dilemmas in a manner that is unparalleled. What is different is that this UA design is based on strengthening leader ability to not only understand the environment, but to act accordingly to seek advantage very aggressively to a much greater competency in combat skills. The UA demands a competency to develop the situation and know more about what's going on before, during and after tactical operations with strengthened means of providing it to small units. In the UA, leadership is empowered by

access to ISR distributed rapidly and effectively in terms meaningful to subordinates and responsive to changes in mission.

To see and understand first, leaders must be capable of understanding the enemy's patterns in the common operational picture, the importance of terrain, centers of gravity, decisive points, and vulnerabilities. UA leaders must know, think and understand one, two and three steps ahead of the enemy because they understand their own capabilities, and understand the strengths and limitations of their adversary. We seek leaders at all echelons that can receive information, assess what it means and know what to do about it. What's new is the UA's ability to empower understanding before, during and after tactical engagements. Situational understanding allows leaders to focus on profitable fights, to decide to act when and where it gains the best tactical advantages for starting and finishing engagements. Seeing and understanding—a continuous, unending process—ensures we can act first. Small unit leaders have to be skilled at the concepts of fighting – movement techniques and control, mutual support, fire and maneuver, control and distribution of fires, integrating combat power, assault, transitions; and executing with speed, agility and initiative. To finish decisively, UA tactical leaders must control the tempo of operations, direct combat actions to destroy the enemy's ability to fight and achieve tactical decision.

Therefore, UA training strategies must promote *competencies of teams*, collective skill proficiencies that produce capabilities integral to combat experiences, as well as *Soldier* and *leader skill proficiencies*. Captains, battalion and brigade commanders in the Unit of Action must not only have guile, courage and be smart in tactical operations; they must have the wherewithal to employ parts collectively to dominate the realm of tactical decision. The UA must have access, competence and cohesion that overcome the insular domains that make up today's combined arms. Its training must drive combat proficiency at collective levels that optimizes individual soldier skills, small unit skills, leader skills, synchronization and integration skills at battalion and brigade.

This chapter provides a discussion of the doctrine, training, leader development, facilities, Soldiers, and implications for change that accompany implementation of the UA. These categories complete the analysis of the DOTMLPF (doctrine, organization, training, materiel, leader development, personnel, and facilities) spectrum within this O&O plan. Chapter three of this document discusses the organizational implications. Materiel implications are presented in chapters three and six.

5.2 DOCTRINE

To fully realize Unit of Action operational concepts and capabilities, it is imperative that we retain our foundation of common doctrine and standards.

In the past, The Army has had a connected set of doctrinal manuals that are based on FM 1.0 and FM 3.0 (formerly FM 100-1 and 100-5), and range from theater echelons down to the company level. These linked manuals tended to be revised on a 5-8 year schedule, with each echelon in succession brought up to date with changes to FM 1.0 and 3.0 and corresponding TTPs, MTPs, and Soldier Manuals. Since The Army is in a continuous process of organizational and equipment transition, this doctrinal process had difficulty accounting for all of the different generations of organizational capabilities at any given time. In the future, we need a less linear way to provide doctrine; this will require institutional change to our approach to developing doctrine.

Development of doctrine and TTP has to be more flexible in the future. The Army in the next two decades will also be in a state of transformation, with legacy, Stryker, and Objective Force concepts, organizations, and equipment co-existing and routinely fighting together. Given this, we must ensure that our doctrinal process contributes to all organizations achieving and sustaining competency in warfighting. To this end, we envision that FM 1.0 and 3.0 will remain overarching and applicable, legacy and Stryker forces and will be a bridge to the Objective Force IOC in FY 2010. We also expect that the doctrine for theater and Units of Employment will account for these various organizations. At brigade and below, however, we expect that differences in organizational capabilities dictate the use of Tactics, Techniques, and Procedures (TTP) as the means of conveying how to fight to similar organizations across our Army. TTP manuals would be tailored for each organization, to account for concept and capability differences, but remain vertically and conceptually linked to the higher Army and joint doctrine.

Doctrine for the future will be more overarching, fairly high end, principled, and definitely not procedural. We must have a more flexible construct in how we provide leaders and Soldiers the tactics, techniques, and procedures that are the basis for how we will conduct UA operations. The Unit of Action will operate in a framework of operational doctrine that is regularly updated by the institution to account for operational lessons learned in an evolving operational environment, then broadcast to field units. We need to ensure linkage between field manuals, mission training plans, and individual skills manuals in an innovative way that is adaptive to the needs of our units, leaders and Soldiers in the field as well as supportive of the training institution's ability to provide the training matched to required performance

standards. Brigade and below TTPs must be linked the unit's Mission Training Plans (MTP) and Soldiers' Manuals; they must be automated and connected to the institution in such a way that they can be updated routinely based on operational lessons learned, training experiences at the CTCs, and TTP development at the schools. For the Unit of Action, the Armor and Infantry proponents will have to develop the UA TTPs, MTPs, and Soldiers' Manuals in time for trainup of the First Unit Equipped (FUE) in 2008, then maintain an ongoing connection between proponents, Center for Army Lessons Learned, CTCs, and the fielding and fielded UAs to ensure that the latest thinking can be added to TTPs and performance standards across the Army, in a networked doctrinal process.

The institution needs to adapt its doctrinal process to one that is more responsive to the needs of the operational Army. The current institutional approach to doctrinal development does not respond quickly enough to the needs of the Objective Force (OF) UA. The UA requires an embedded repository of 'how to fight' TTP in its training architecture that enables crosswalk from mission and training to common doctrine, TTP, individual and collective performance standards. Soldiers and leaders must be able to move throughout the Army and contribute to the collective competency of the unit upon arrival without having to recalibrate to unique SOPs.

Joint doctrine will affect our Army doctrine. Doctrine development to support the UA must integrate, at the lowest possible echelon, today's service-based system with joint, interagency and multi-national doctrinal development systems. Emerging OF and UA doctrine must be inherently joint and address the considerations of combined/coalition operations.

The UA represents a new way to train, organize, equip, and fight. OF doctrine must reflect these revolutionary changes to the methods and procedures now required to effectively train, alert, deploy and employ the UA. The doctrinal implications resulting from the establishment of the UA cut across all battlefield functional areas and current branches, and must address the full spectrum of military operations.

5.3 TRAINING

The UA requires a revolutionary and dynamic training and leader development model producing leaders who are confident to lead and train organizations composed of Army, joint, and multi-national elements. These Soldiers will be self-aware, operationally focused, and enabled by the Global Information Grid to reach for information and see clearly how to adapt to any situation. They require relevant, on-demand, training available anywhere, anytime, and tailored to the users' operational requirements. Our strategy transforms from a framework that emphasizes frequency of training to one of

efficiency and effectiveness. We require a level of competency enabled by technology that is adaptive and embedded within the UA associated with proper leadership, cohesion and unit design. ***We need a different way in our training strategy to get at the core performance of leaders and units.***

UNIT OF ACTION TRAINING CONSTRUCT

FULL TASK, MULTI-ECHELON & INTEROPERABLE TRAINING SYSTEM

The UA training model supports the development of commander and leader proficiency. The training model must support the growth of leader proficiencies in tactical and technical skill sets. Training must focus on building leader mental agility to recognize and resolve complex tactical dilemmas found in full spectrum operations with an adaptive, complex enemy in all terrain and all weather. Additionally, the training model must emphasize the growth of character and fitness for all leaders. Tactical and technical proficiency as junior leaders provides the building block to attain commander and staff proficiency at battalion and brigade levels.

5.3.1 Embedded Training.

The FCS training system must be fully integrated within the FCS system of systems architecture (SoSA). The on-board system will use operational networks to conduct distributed networked training exercises. This feature will enable the unit to truly train, as it will fight.

Collective training applications fully embedded in the design of Future Combat Systems (FCS) will be paramount to the UA training concept. The ability to train and maintain Soldier skills will be a key parameter in materiel acquisition programs that support the UA and Army modernization and recapitalization programs of legacy systems that interact with the objective force. The FCS design, and upgrades to other systems, will provide commanders a fully integrated, non-detachable, embedded training system. This system will be usable on demand to support individual/Soldier, staff and collective training at institutions, home station, combat training centers (CTCs), during deployment and employment.

The on-board systems provide reach capability for additional training support of FCS Soldiers, leaders, staffs and units. The FCS training system employs interoperable standards and protocols to enable training with legacy and interim forces using virtual, constructive and live training systems. Additionally, any stand-alone training aids, devices, simulators, and simulations (TADSS) developed to augment embedded training systems will employ consistent standards and protocols also facilitating interoperability with legacy and interim training systems as well. The FCS training system and underlying architectures must be compliant with the training support system (TSS). Current examples include joint technical architecture (JTA), Army training information architecture (ATIA), training test and enabling architecture (TENA), common training instrumentation architecture (CTIA), and the defense information infrastructure common operating environment (DII COE). Our training systems must have interoperability with joint and interagency systems, and adaptable to allies, coalitions and non-governmental organizations (NGOs) systems.

We require FCS embedded leader development CFX and CPX capabilities that *hone the proficiency of leaders* to perform their individual responsibilities, how they fit into the framework of small units, and how they operate as a member of a leadership team. Leader exercises must be mission-focused at small unit level up to brigade operating with a division UE or JTF.

5.3.2 Full Task Trainers (FTT).

In FCS ground platforms for soldiers and crew proficiency will eliminate the need for separate virtual simulator suites. For air platforms (RAH in UA), configurable full task trainers will provide a similar level of high fidelity training. Feedback needs to be similar to a CTC live fire framework. Data feedback, for example, should be able to inform us of the number of mortar missions that were effective. Did the company commander mass weapons effectively? What was the number of platoons or squads that did or did not get into the fight? Did we perform overwatch and mutual

support to standard? What was the number of rounds fired – was LOS, BLOS or NLOS effective? How long did it take to get effective fires on the enemy? Did the unit develop the situation to the fidelity needed?

We need Full Task Trainers *for platoons and companies* with an embedded training architecture that when we do tactical engagements, we are *able to get key performance indicators*. Is this outfit able to achieve tactical decision on demand built around inter-dependence for success? Our training model must account for effective contribution of sensors. Did they produce what we wanted them to? Did they acquire targets in a way that contributed to lethality overmatch? Did they facilitate tactical maneuver to advantage? Did they contribute to tactical decision? Did leaders contribute effectively? Did soldiers contribute effectively? Because we say the synergistic effect of fires that are LOS, BLOS and NLOS are key to lethal overmatch, embedded architectures must be able to provide this feedback. Training architecture must account for who shot what, when and at what point. Did we achieve fire control and distribution? Did we provide adequate overwatch in mutual support of movement and maneuver? Were fires and maneuver fully integrated? For NLOS, were we able to achieve effectiveness with regards to mission, task and purpose? Is it contributing in way that complemented maneuver? Did we get suppression and obscuration to enable freedom and maneuver and protection of the formation? Today, we do not know. In the future, we must know and train to this higher level of performance standards.

Our Full Task Trainers must also *enable rehearsals*. How will the UA do rehearsals? What is different is a strengthened rehearsal mechanism that facilitates leader and collective competencies. We need a virtual collective framework that empowers more efficient and effective rehearsals. It must be able to assemble parts collaboratively and be tiered to bring together external input. We no longer accept a strategy of rockdrill sites that requires leaders to assemble at one location and treats execution as wooden, mechanical solutions. Instead, we seek an *embedded rockdrill capability* to go through potential dilemmas and think through branches and sequels. As concepts unfold in relationship, we want to establish tactical control measures and schemes, and be able to adjust as needed. We want these to be permeated through out the organization simultaneously.

TRAINING SYSTEM CHARACTERISTICS

C4ISR ARCHITECTURE ENABLED TRAINING VENUES

- **Diagnostic software with performance metrics for leader, soldier, small unit, and battlestaff proficiency**
- **Mapped to 'how to fight' manuals and MTP to gain technical and tactical competency for combat performance**
- **Draw from a variety of scenario conditions to gain full spectrum and global confidence**
- **Distributed live, virtual, and constructive participants**
- **Link home or remote stations, NSC, CTC, and schoolhouse**
- **Embedded in FCS and tactical command posts. Leverage UA C4ISR architecture for instrumentation and virtual teaming**
- **Scaled to training needs of the unit (T/P/U); have greater control of readiness destiny**
- **Fight a semi-autonomous or World Class OPFOR**
- **Combined arms collective competency for combat performance**
- **Linked to repository of doctrine, MTP, and soldier manuals.**

5.3.3 Performance Oriented Training.

Training means readiness. Within the UA, tactical competence of the formation and its leaders is paramount. In the future, we have the opportunity to achieve profound change in the quality and rigor of performance oriented training—collective, leader, and Soldier skill sets. The FCS must embed the instrumentation necessary to give the UA from Soldier level to brigade formation feedback on core performance. The FCS embedded training capability within the Systems of Systems Architecture (SoSA) must account for all contributing capabilities—for example: fires, suppression, overwatch, obscuration, terrain knowledge, deception, ISR and so on. Embedded training must provide a virtual framework for the formation to conduct planning, training, and rehearsals. Feedback must be linked to performance standards, must be rigorous, and must account for all contributing capabilities. The training architecture embedded in the FCS must support the attainment of tactical competence of the formation and its leaders. The training strategy and supporting systems must ensure that training standards can be established, assessed, and enforced.

Exercises must train junior leaders how to manipulate platforms, systems, and Soldiers as part of a unit and optimize hands on, performance oriented, experiential training to plan, prepare and execute operations. Leadership development must reinvest in the application of tactics,

techniques and procedures (TTP) in relation to the variables of terrain, weather and enemy. We want leaders to be competent in discretionary employment of small units during the conduct of tactical tasks; leaders who seek advantage not constrained by graphical boundaries; are unshackled and empowered to take initiative; yet have coherency of task and purpose.

We seek *situational training exercises* that promote thinking and action, not just mechanical action or drill proficiency. Drills are useful but are not our endstate in performance. Drills today focus on getting systems into position to be lethal in a 'process' construct with knowing how and why. We must get back into a framework that stresses the tactical competence of the formation. In these formations, we are reintroducing the quality of TTP balanced with drills. TTP are the discretionary application of schemes to always put the unit in advantage over a foe. TTP involve the discrete application of Soldiers, systems and external support. In this construct, situational training exercises must provide the ability to conduct live and virtual training with feedback mechanism. Our training methodology for platoons and companies recognizes that there can be many solutions. It is performance of units against tasks, conditions and standards that count. *The training feedback mechanism must allow us to be able to determine in the construct of a collective training experience, does the unit demonstrate core competencies to accomplish task and purpose.*

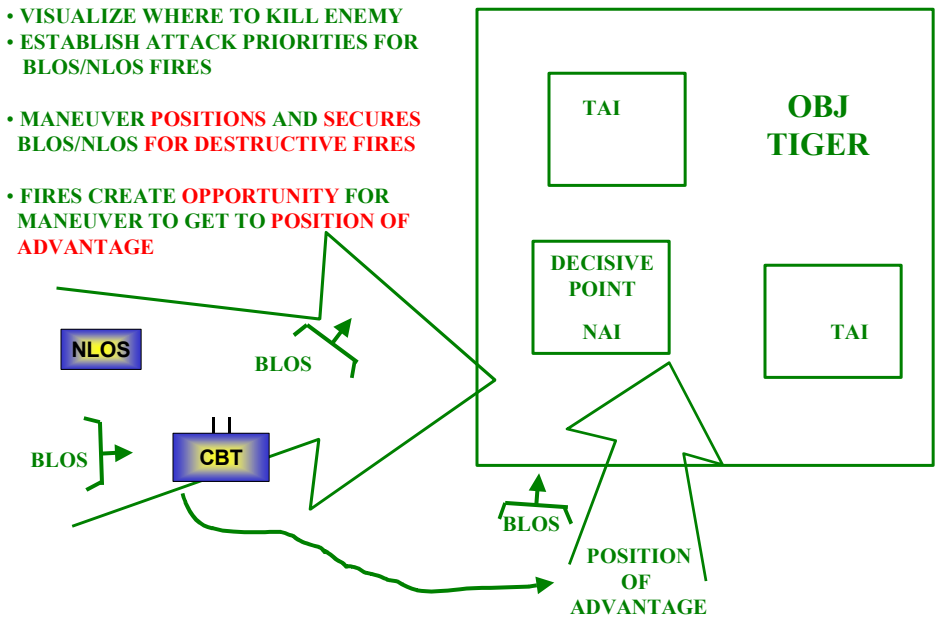
The UA will require a leader development CFX capability that will facilitate training from garrison. The UA Commander can call the National Simulation Center and arrange training scenarios with supported semi-automated or World Class OPFOR for 24-48 hour low overhead, discretionary training. This will permit the commander to take bottom up input to identify training readiness and execute repetitive training scaled to needs—to push 'P' to 'T' in the unit training assessment. Training can be multi-echelon and combine live, constructive and virtual. The embedded training architecture facilitates small unit proficiency as well as commander and staff proficiency. It also enables the ability of the 'school house' to provide observer controllers or to integrate institutional training into UA training—for example a small group of combined arms students at Leavenworth, Benning, Knox, Sill, Lee, Leonard Wood, Bliss or Rucker could participate as a constructive 4th combat battalion or as a reinforcing maneuver support or maneuver sustainment unit in a UA Brigade deployed to a CTC or training at its home station.

5.3.4 Brigade and Battalion Leader & Staff Training.

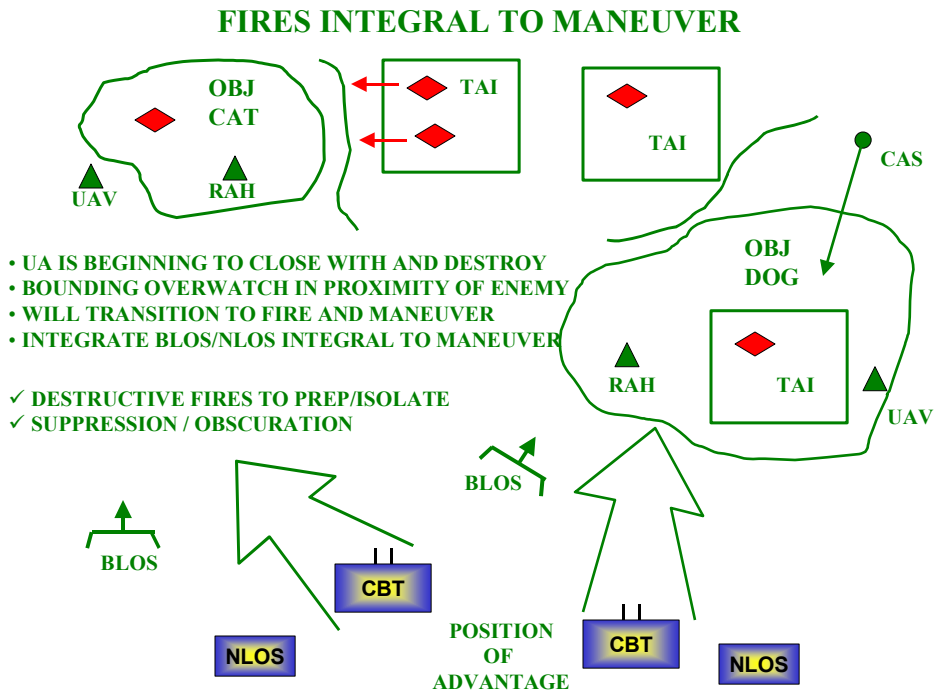
Brigade and battalion commanders must be proficient at synchronizing ISR, fires, and maneuver. This is a critical training requirement which is at the heart of the training model desired for the UA commanders and staffs.

The embedded training system architecture will have to facilitate rigorous, high resolution training in the ability to synchronize ISR, fires and maneuver to attain a high proficiency in the tactical concept. For example, brigade and battalion commanders must be able to train repetitively to attain the highest order of proficiency in maneuver complemented by fires and fires integral to maneuver to execute the tactical concepts linked to the operational concept described in Chapter 4 of this O&O. This has significant implications for the C4ISR architecture and the embedded training architecture.

FIRES COMPLEMENTED BY MANEUVER



When fires are complemented by maneuver, the commander must visualize how and where, he wants to destroy the enemy. Destructive fires are going to be the means to achieve enemy disintegration, dislocation and destruction. The commander employs maneuver to shape the objective or engagement area and focuses external and internal fires from NLOS and BLOS to strike the enemy with killing blows, destructive fires. ISR is layered to develop the situation, detecting and identifying high payoff targets for destruction by fires. Maneuver helps shape the killing area—emplaces BLOS fires elements and secures NLOS firing units. Transition may occur rapidly with maneuver exploitation of the success for fires and pursues the enemy. NLOS Fires units shift fires purpose to protective fires to suppress enemy and to provide close support. NLOS units maneuver to maintain supporting range of maneuver forces.



When fires are integral to maneuver, the commander must again visualize how and where he wants to destroy the enemy. In this tactical concept, the commander recognizes that the enemy composition and disposition, the qualities of the objective, or other condition will require maneuver to develop the situation in contact with the enemy and close fighting by tactical assault. Fires by NLOS, BLOS, and LOS will be integral to the tactical assault. The commander will identify and position forces in positions of advantage for BLOS and NLOS fires, and potentially LOS direct fire assault positions. ISR is again layered to assist the UA to develop the situation. Air cavalry with RAH and teamed UAV's provide reconnaissance with the capability to direct fires against high payoff targets. In the close fight, RAH provides close support to maneuver elements. Ground recon troops provide R&S for mobility and identification of enemy positions to facilitate rapid maneuver. Additionally, ISR assets verify for the commander the positioning locations for NLOS and BLOS firing units (terrain and disposition of enemy). As maneuver elements close with the enemy, fires units provide very precise destructive fires as well as protective fires for suppression and close support. NLOS fires capabilities to provide suppression and obscuration to reduce enemy observation, to protect flanks, and to isolate the objective are essential.

5.3.5 Training Implications.

The C4ISR architecture must include embedded training from individual/crew to collective – full task trainers embedded in ground platforms and configurable full task trainers for air platforms. Training implications include:

- Software to support training must be 'as capable' as how to fight doctrine – very adaptable and updateable.
- The training model must support combinations of virtual, constructive, and live training.
- Training to order – a National Simulation Center capable of providing scenario, threat, terrain, weather – full spectrum.

Leading and operating in the UA during any type of operation will challenge officers, non-commissioned officers (NCOs), and Soldiers. In tactical situations the various echelons will operate relatively independently - out of sight of each other. The training implications of this environment include:

- The need for more multifunctional individual and team training.
- Sophisticated, embedded training/decision aids will be required at all levels (Soldier to leader).
- Soldiers and leaders adept at individual tasks required to support collective training.
- Officer and NCO performance, knowledge and skills broadened to cover a wider array of tasks.
- Battle staff training essential to synchronize the effects of joint and combined arms operations on the battlefield with Army Stryker and legacy forces.
- A right mix of live, virtual, and constructive systems to maximize the effectiveness of individual and collective training.
- The need for 'reach' capabilities at every level to facilitate training in combat as well as at home station.

5.4 LEADER DEVELOPMENT

The changing Operational Environment requires new ways to think and operate. Army transformation to achieve the Objective Force Unit of Action will drive revolutionary change in how we prepare leaders and Soldiers. We will design doctrine, education and training;

- To instill the mental agility and versatility required to master transitions across the full spectrum of operations;
- To develop Soldiers as warriors with common baseline of values, field-craft, discipline, and ability to employ emerging combat systems;
- To accommodate uncertainty; and to foster a culture of disciplined initiative, teamwork, determination, sacrifice and self-reliance.

By far the most important design requirement of the Objective Force UA will be the development of adaptive Soldiers, leaders, and units.

To develop competencies to perform the full spectrum of missions, the Army requires a coherent strategy that spans education in the schoolhouse and training in units. We must develop leadership we can rely on to go into support operations, stability operations, SSC or MCO. But we must have a framework of education and training that allows officers to understand the applicability of Army values to warfare, and the differences between strategy and tactics. It must develop leaders who are competent inside the UA and about its tactics, who understand intent and purpose and can make tactical decisions, and who know what TTP they need to employ to reconcile tactical and operational dilemmas. This requires a collaboration of learning experiences of leaders and soldiers inextricably integrated in a collective framework.

Leader development will focus on universal qualities of leaders to have tactical competence. We will not be satisfied with 'localized' ways of doing business that must be learned anew each time leaders change duty station. The small units of the UA will still be capable of basic squad and platoon drills and tasks. However, small unit leaders also must be competent in selecting and employing tactics, techniques, and procedures that allow their small units to deal with the changing situations that will occur in tactical combat. The objective of leader development is to build tactical competence and confidence to successfully handle complex tactical dilemmas.

Our UA body of work has provided insights into what will constitute small unit excellence for the UA. Small unit leadership and Battle Command will require adaptive, creative multifunctional leaders. Resident within small units will be leaders and Soldiers who are empowered to exercise uncommon initiative, based upon competencies in skill sets associated with warfighting. Small units will be execution focused; their leaders, enabled by technology, will be mentally and physically ready to lead fighting team of teams. Leaders will be competent at decentralized execution on the basis of mission orders and intent. In operations where small units will often be more dispersed on the battlefield than ever before, the value of competent leaders who operate forward with fighting teams will be greater than ever before. The requirement for leaders to operate forward at key points on the battlefield endures.

One of the principle aims of effective leadership is that it must produce 'wisdom of action' based on insight, foresight, instincts, inspiration and innovation. This has to be done in 5-dimensional battlespace: the physical (3D), the human dimension (4D) and the temporal dimension (5D). This grasp of the 5D nature of battlespace is critical to ensure understanding complex sets of outcomes 'in the dirt' on land, over time, and in the minds of a wide range of players.

The abilities described above are the product of making conscious investments in Soldier / leader development through advanced studies, through experiential learning, through in-country studies, and through operational experience in which soldiers and leaders develop instincts that enable them to 'see what others don't'. This ability to be competent in military art and see what others do not is what gives decisive advantage on complex battleground. It is also what makes soldiers able to assume leadership roles. It is what makes a digitized COP come to life, and what is required to bring meaning to a plasma board and databases.

Life-Long leader learning applications must span the spectrum of functions in the practical forms of 1) classroom tools, 2) high-tech battle books, 3) on-line products, 4) knowledge reachback services and support, 5) knowledge outreach, 6) experiential learning (virtual and actual), 7) virtual and actual coaching / mentoring / advisory support and 8) a hierarchy of self-development programs that enable advanced, specialized and emergent areas of expertise.

As an extension of leadership, commandership in the 21st Century needs to extend beyond the doctrinal 20th Century Battle Command model to address the nuances of full-spectrum operations in the Operating Environment. The command and control of outcomes takes on dynamic meaning for 21st Century battle command when one considers the broad range of players and effects to be orchestrated, the majority of which are not a part of the military's organic formations nor are a part of familiar battlefield effects. The art and science of command thus takes on new meaning and implications for leader developers that must be apace with complex realities on contemporary and future battleground.

Significant DTLOMPF implications for leadership include the following:

- Small unit leaders will command and control over greater distances.
- These leaders will rapidly transition from standoff to close assault.
- They must be able to command on the move, in a fight, in all terrain, in all weather, when the enemy is reacting and counteracting to our small unit actions.

- Small unit leaders must have the tactical acumen to decide rapidly when to remain mounted for tactical standoff and when to dismount to support mounted maneuver and for close assault.
- They must be competent in the integration of supporting fires and aviation.

Small unit excellence requires leaders who anticipate well, are comfortable in decentralized actions based upon small unit initiative, and possess Army values.

Battles will continue to be decided by the direct leadership in fighting teams, acting, contributing, and influencing the outcome of the engagements. The time to begin training objective force leaders is today. Today's lieutenants and corporals are the colonels and sergeant majors of the Objective Force. This generation of leaders must be prepared through the military professional education system to become objective force leaders rather than either legacy or interim force leaders. Though they may, at times, serve in legacy and Stryker forces, they must seek to develop the intellectual momentum of an Objective Force leader.

The UA requires a holistic and mutually supporting training and leader development process. Each portion of the leader development triad (institution, unit, self) must have a particular role and focus. The focus of the leader development system at junior levels will be to inculcate new leaders with a common set of values and tradition and to train them in the conduct of war, providing them the minimum skills and knowledge necessary to make the initial transition to their first assignment. At intermediate and senior levels of leader development, the focus will shift to provide an educational environment and curriculum exposing leaders to the nature and the art of war as opposed to only the scientific conduct of war. The UA leaders must know 'how to think' versus 'what to think' at every level of command. The institution must support this requirement by creating an academic setting that produces well-rounded leaders, capable of synthesis, adaptive, politically astute, with broad understanding of human nature, as well as capable and comfortable with the full-spectrum operations environment with joint, legacy, Stryker and coalition forces in the 21st century battlefield.

5.5 FACILITIES

While the areas of doctrine, training, and leader development will constitute the preponderance of the transformation effort, each of them will have implications that affect the existing and future Army facilities. The Army will have to determine if current stationing plans support future OF units. The facilities and infrastructure of Army garrisons will require a significant investment of resources to train and deploy UA forces in accordance with the

UA concept. The power projection infrastructure of our facilities must be carefully analyzed to ensure the UA can meet deployment timelines. Once deployed, units will rely upon a robust reach back capability to support themselves both operationally and logistically. Facilities must support this capability through robust communications nodes.

Facilities need to be capable of supporting new equipment, sustainment and ramp up training. They must optimize systems integration and training, and warfighter readiness evaluations. Although commanders and staffs will be able to conduct constructive training events from their FCS platforms, facility support will be required to conduct much of the UA's training. It is likely that many installations will require:

- New ranges to accommodate the capabilities of advanced weapon systems.
- Fixed tactical internets
- Wireless communications
- Linkups in motor pools and soldiers quarters
- Battle simulation centers
- Mission support training facilities
- Digital multi-purpose range complexes
- Home station instrumentation systems
- Motor pool upgrades that support embedded vehicle training
- Electrical connections for vehicles to prevent wear on engines
- C4 node hookups.
- Heating/humidity ducts for winter operations and to protect equipment during winter and heat vehicles to support crews
- Overhead covering to protect systems from elements in order to prolong vehicle life from moisture and support training has been used in Europe with great success
- Airfield/dirt/improved airstrips to support UAV training
- Hangar type buildings in support of UAV's

- Dedicated air traffic control at facilities to deconflict air space
- Storage facilities to maintain 72-hour basic loads (all classes) in support of mission support
- Unique ammo storage requirements
- External power support in case of electrical outage
- Uninterrupted Power Supply (UPS) for key support sites
- Generator support for key reach sites

Adequate airfield support for airlift

5.6 SOLDIERS

Despite the stated emphasis on doctrine, training, and leader development, the human dimension, the Soldier, remains the centerpiece of the Objective Force. The human dimension encompasses aspects beyond the mental, physical, moral, and spiritual well being of soldiers themselves. The human dimension impacts UA readiness and extends to civilians, contractors, families, and the institutional support networks that frame the environment surrounding them. The Soldier is the most important factor in maintaining and effecting unit readiness. Soldier and unit readiness in the UA are synonymous and critical elements in the Train – Alert – Deploy - Employ culture of the Objective Force. UA soldiers will be physically and psychologically prepared for non-contiguous warfare, fighting in small units separated from their higher headquarters; they must possess the competence and confidence to close with their opponents in open, close, and complex terrain and kill them. Advanced technologies empower soldiers and leaders to achieve situational dominance, creating a powerful construct for the use of force; the human dimension of the Soldier empowers him with the moral courage and determination to impose the will of the nation.

The future operational environment for the UA strongly suggests the tempo and intensity of operations will expose soldiers to the enduring stresses on the battlefield. Potential solutions to inuring soldiers to these stresses rest most prominently in ensuring soldiers are exposed to replications of these stresses in extremely high-resolution training and education on a recurring basis. Moreover, soldiers and particularly leaders must understand the potential outcomes of human behaviors on the battlefield and let them contribute to the advantage of friendly forces. Successful UA operations will be grounded in the human dimension, the vital heritage of America's Army. Developing and maintaining this edge in the

4250 human dimension is critical to the success of the UA. This is where we must
4251 make significant and long-term investments.

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CHAPTER 6 STATEMENT OF REQUIRED CAPABILITIES FOR FUTURE COMBAT SYSTEMS

This chapter describes the required capabilities in the Unit of Action and Future Combat Systems. This chapter contains an updated (annotated) Statement of Required Capabilities (SoRC) with changes underlined.

The Army's developmental work over the past several years has provided a tremendous body of work. This work has developed the analytical underpinnings for required capabilities to achieve key Unit of Action concepts and the Future Combat Systems that will provide the DOTMLPF solutions to achieve the Objective Force Unit of Action Maneuver Brigade this decade.

The capabilities cited herein represent the body of work to date. The SoRC has been significantly modified since its release in November 2001 to reflect the results of subsequent study, analysis, and professional military judgment.

6.1 STATEMENT OF REQUIRED CAPABILITIES

Future Combat System of Systems (FCS)

Purpose. This document summarizes required capabilities to achieve Unit of Action concepts and to support the FCS Mission Need Statement (MNS). The document is organized as follows:

- Responsiveness
- Deployability
- Agility & Versatility
    - Maneuverability
    - Mobility
    - C4 and Leadership
        - Soldier
    - Information
        - Intelligence, Surveillance and Reconnaissance
- Lethality
- Survivability
- Sustainability

- Training

6.1.1 Responsiveness.

Responsiveness has qualities of time, distance, and sustained momentum. It includes the ability to capitalize on the positioning of forward-deployed forces and supplies as well as strategic lift. It demands close, continuous coordination between Army component commanders and joint and interagency decision-making bodies. To be credible, The Army must be responsive enough to counter any threats to American and allied interests anywhere in the world. Responsiveness also encompasses the political will of the Nation to deploy forces in response to a crisis or threat. For American forces to be successful, adversaries must realize that American land power can prevent them from achieving their aims and also recognize the willingness of the American people to support military action.

1. **Capability**. Insert FCS combat unit into an austere theater through multiple unimproved entry points without relying on fixed ports and staging bases to overcome problems of enemy access denial strategies.
2. **Capability**. Deploy and employ the Unit of Action immediately upon arrival as a coherent, integrated combined arms formation, as part of a divisional UE or a JTF, by air, ground or sea in support of early and forcible entry operations.
3. **Capability**. Upon arrival, FCS combat units immediately employ over operational distances (up to 400 km) to designated area(s) of operation as a coherent, integrated combined arms team. Upon arrival, the UA must be able to conduct these *core mission tasks*:
   - Close with and destroy enemy forces or seize terrain to dominate the battlefield.
   - Synchronize command and control (C2); intelligence, surveillance, and reconnaissance (ISR); maneuver, fires, survivability, and sustainment.
   - Develop the situation with external and organic ISR, Army and joint, to satisfy core information requirements in the fidelity needed to meet mission, task and purpose of each echelon in the UA.
   - Prepare the battle space to set conditions for tactical maneuver and protect forces with external and internal fires, Army and joint.
   - Conduct offensive operations to fight and win simultaneous, multiple engagements over an extended battlefield framework.
   - Conduct defend or delay operations.

- Rapidly transition to changes in focus and mission, between tactical engagements or battles. Rapidly accept augmentation forces and establish strengthened relationships, supporting to supported.
- Build and sustain combat power of organic forces.
- Execute a company-sized tactical air assault. Execute a battalion-sized air assault with divisional UE support.
- Execute Stability Operations.
- Execute Support Operations.

4. **Capability**. FCS combat tactical units are immediately capable of conducting distributed, simultaneous, multiple and continuous fully integrated combined arms full spectrum operations, day and night, against any threat in a wide assortment of terrain and weather conditions from open to complex and urban throughout an expanded battlespace without undergoing reception and staging. The UA can self-sustain military operations for up to three days of high intensity tactical operations upon arrival. Minimal prep time is required from alert to deploy and from deploy to employ after arrival.
5. **Capability**. UA must be capable of supporting operational maneuver directed by the JTF commander by combining vertical and inherent horizontal maneuver qualities of FCS units. During entry or decision operations, can 'pick up' the UA by a wide range of air, land or sea options and reposition it at advantage to seize opportunity and attack enemy centers of gravity or decisive points. The UA must be tailorable to be delivered into austere environments and operate autonomously or semi-autonomously.

6.1.2 Deployability.

To be truly responsive, Army forces must be ***deployable*** and capable of quickly and rapidly concentrating combat power in an operational area. The Army goal is deploying a brigade combat team anywhere in the world in 96 hours after liftoff, a division in 120 hours, and five divisions in 30 days. This will require enhanced systems and capabilities. Systems must be transportable, logistics must be focused and flexible, and a culture must reside within The Army that accepts deployment readiness as a way of life. Army forces need support from the other services to achieve the required levels of deployability.

1. **Capability**. FCS equipped UA must be ***transportable*** by inter/intra-theater land, sea vessel and airlift anywhere in the world; be more deployable with reduced deployment tonnage; be transportable by C130 profile aircraft with essential combat load and, when available,

comparable advanced vertical lift such as Joint Tactical Rotorcraft (JTR), Advanced Theater Transport (ATT), or Theater Support Vessel (TSV). Rationale for this capability is to introduce the UA at multiple points of entry that are unpredictable to overcome enemy access denial, to be able to leverage austere points of entry to increase force flow, to increase transport options available to the combatant commander using C130/C17 aircraft and fast sealift, to conduct operational maneuver to positions of advantage during a campaign, and to pursue future vertical lift concepts that are follow-on to C130 and CH47.

2. **Capability**. Enable the ***deployment*** of a combat ready brigade combat team anywhere in the world in 96 hours after liftoff, a warfighting division on the ground in 120 hours, and five divisions in theater in 30 days.

3. **Capability**. Be capable of rapid inter-theater to intra-theater ***trans shipment*** to maximize force flow and gain operational momentum to meet deployment objectives.

4. **Capability**. The UA must be able to integrate into Enroute Mission Planning and Rehearsal Systems (***EMPRS***) during alert, deployment and employment. FCS and Unit of Action C2 systems must access enroute mission planning, and support mission rehearsal, battle command, and ability to integrate into gaining C2 architectures during movement by air, land and sea.

5. **Capability**. Provide embedded joint ***in-transit visibility*** of systems for movement planning and tracking.

6.1.3 Agility And Versatility

Army forces must possess the ***mental and physical agility*** to transition among the various types of operations, just as we have demonstrated the tactical warfighting agility to task organize on the move. Agile forces will be required to transition from stability operations and support operations to warfighting and back. As the Army crafts a more rapidly deployable force structure, it must continue to grow leaders who can adapt quickly to change. The pace and complexity of operations will increase, especially as military operations in the information environment become more important.

Versatility must be emphasized in doctrine and training at all levels. Our organizations must be able to generate formations that can achieve sustained land dominance at any point and in all environments. This must be done with minimal adjustments and in minimal time. Currently our warfighting organizations can be tailored to respond to the any contingency. However, the future will require even more versatile forces. Increasing

versatility requires special consideration of structuring and equipping initiatives as well as training of personnel to respond to unfamiliar scenarios.

1. **Capability**. The UA brigade is ***full spectrum capable***, optimized for offensive operations. FCS combat units must be optimized for closing with and destroying any threat in all terrain and weather conditions when forces are joined by: 1) bounding overwatch under contact, 2) fires at standoff and tactical movement not in contact, 3) fire and maneuver in contact, and 4) tactical assault. Closing and destroying includes any form of lethality, Army and joint, to engage an enemy with LOS, BLOS and NLOS fires when under observation by an adversary and when in contact. FCS combat units must rapidly exploit success.

2. **Capability**. Enable quick ***transition*** between engagements; changes in mission task, purpose and direction to execute branches or sequels; or to conduct reconstitution or mission staging without sapping operational momentum. The UA will be able to attack from the move and execute simultaneous, multiple deliberate attacks under hasty conditions. FCS units must adapt faster than the enemy can.

3. **Capability**. The UA is design to be inherently ***modular***. Based on mission needs, it can add to and take away capabilities on demand. The network must facilitate ***rapid force tailoring*** and teaming as required and enables mission retailoring during tactical operations.

4. **Capability**. Accept legacy and Stryker systems and unit tailoring.

5. **Capability**. Provide inherent capability to perform ***Battle Command*** on the move. The C4ISR architecture must enable commanders to lead forward and in proximity of where they need to be to influence the outcome of battles. Empower leaders with technologies such as terrain and problem solving/decision tools to perform their roles during tactical operations. Leaders and staffs conduct continuous 'running' estimates of the situation while on the move collaboratively and by an integrated common operating picture (COP) that enables early understanding of threat actions/intentions. The COP provides critical combat information (enemy, terrain, weather, non-combatant and friendly) tailored to unit mission, task and purpose. It enables visualization and dissemination of tactical schemes by mission orders with graphic overlays. Changes in leadership that occur during battle will be automatically disseminated to appropriate levels with shared COP to enable continuity of command. Units must be able to move from one tactical engagement to the next with an integrated ISR, fires and maneuver plan ready for the next battlefield architecture. Battle Command tools enable leaders with the wherewithal to:

- Know the terrain and appreciate its tactical implications for tactical concealment, employment of weapons, mobility and seeking positions of advantage.
- Know the enemy, where his capabilities are, his composition, disposition, intent, movement, strength and limitations.
- Know where friendly forces and their capabilities are.
- Control and distribute fires. Know where to establish priorities in fire plans.
- Adapt to emerging situations more quickly than an adversary. Be able to adjust in real time to developing enemy actions as opposed to merely fighting a plan.
- Be in position to direct effective maneuver, and fully integrate fires with maneuver.
- To enable rapid resynchronization of forces and functions to mitigate the potential loss of combat power.

6. **Capability.** Provide ***operations groups and command posts*** for use by command groups and their staffs to command and control tactical operations. These facilities are optimized to: rapidly develop plans; synchronize combat power; command and control in a very dynamic and adaptive environment; orchestrate the development of the situation with organic and external ISR, Army and joint; prepare the battlespace with fires, Army and joint; direct tailoring; perform A2C2; protect and sustain the force. Synchronize maneuver - mounted and dismounted, manned and unmanned. Integrates air in roles of reconnaissance and close support of ground operations. Architecture strengthen supporting to supported relationships. These C2 capabilities must be 100% mobile.

7. **Capability.** Enable setting of conditions and movement to a position of advantage to initiate combat on our terms, at a time and place, with a method of our own choosing. Be resilient and durable to withstand unexpected actions on contact.

6.1.3.1 Maneuverability.

8. **Capability**. Enable ***decisive maneuver***, horizontal and vertical, day and night, in all terrain and weather conditions synchronized with Army and Joint fires and ISR.

9. **Capability**. FCS combat units have superior ***tactical mobility*** in a wide assortment of terrain and weather variables as a dismounted / mounted combined arms force without compromising tactical unit integrity. Operational mode summary of FCS is off-road tactical speeds

of 50 kph and on road speeds of 90 kph. Rapid dash speed from cover to cover is key. Capability is not only a platform mobility characteristic but also involves understanding how to use terrain to mobility advantage, and how to deny that advantage to the enemy.

- Provide tempo for rapidly gaining initiative and momentum. Negotiate all-surfaces: on and off-road, improved or unimproved trails. Be able to move to positions of advantage with speed and accuracy.
- Systems must be able to ford and negotiate rubble.
- FCS must provide protected mobility of 7-9 man rifle squad and 6-9 man weapons squads.
- FCS provides multi-purpose robots to perform functions such as ISR and sustainment for manpower intensive or dangerous tasks. These may also be armed.
- FCS platforms must be retain sufficient mobility in degraded mode to continue the operation or link up for combat repair. Systems must also be like- and self-recoverable.

10. **Capability.** FCS combat units must have unsurpassed ***mobility over operational distances*** (up to 400 km) to designated area(s) of operation as a coherent, integrated combined arms team.

11. **Capability.** Provide enhancements that enable soldiers to conduct ***dismounted maneuver*** with load bearing equipment and load not to exceed 40 pounds, enable soldier stamina through prophylaxis and enhance endurance in hot, cold, dry weather with advanced uniform ensemble.

12. **Capability**. Support fully integrated combined arms ***maneuver*** of combat tactical units to execute:
    - Mounted operations enabled by dismounted forces.
    - Dismounted operations enabled by mounted forces.
    - On occasion, dismounted operations.
    - As required, mounted operations.Conduct airmobile/air assault operations by a dismounted unit with manned or unmanned mission equipment packages dismounted from their platforms to have overmatching combat power until linkup can be accomplished.

13. **Capability.** Enable ***tactical operations in urban terrain*** as dismounted operations enabled by mounted forces as integral to overmatching combat power fully integrated with ground maneuver to retain initiative and aggressively reach tactical decision.

- Must establish tiered, multi-echelon and multi-dimensional: ISR, fires and maneuver that are fully networked to assure overmatch in lethality, survivability, mobility and information in urban conditions.

- Gain dominant situational understanding continuously under day and night conditions throughout the tactical operation by employing organic manned and unmanned, air and ground R&S that is fused with external ISR (SOF, coalition, joint, strategic, and national). Must network ISR that is 'tiered' from brigade, battalion, small units ('troops in contact') and external to gain multi-dimensional synergy to see and understand first. Be able to quickly prioritize and reprioritize focus at NAI / TAI on approach routes and objective areas. ISR must overwatch tactical movement, fire and maneuver, the assault and enable actions on contact against the surprise encounter. It must cover dead space and gaps that could conceal enemy ambushes, counterattacks, reinforcement, or withdrawal. ISR must be networked with direct access to the full array of LOS, BLOS and NLOS fires, Army and joint, with sensor-to-sensor links that receive fire support in seconds. Allow visualization through walls and thick foliage, inside buildings, caves or subterranean infrastructure.

- Gain lethality overmatch through overwatching fires and mutual support against all threats in compartmented urban terrain conditions. Overwatching fires must account for dead space and gaps, flanking and enfilade fires from keyhole positions that will be masked. Overwatching fires from LOS, BLOS, NLOS – Army and joint, must be integral to movement, fire and maneuver, the assault and actions on contact. R&S and small tactical units must be networked to an array of 'tiered' fires from snipers, MGS LOS/BLOS, PGMM, NLOS, joint (CAS, AC130, etc.), and RAH66 in close support for on demand, very responsive, accurate and reliable fires. Due to time and space limitations of getting quick fires on floors, between floors, or in alleys; elements require 'point and shoot' capability in which the observer either marks the target by laser or transmits targetable data to firing platforms. Fires must respond to 'point and shoot' in less than 5 seconds and must be fire and forget. MGS LOS/BLOS provides immediate direct fire support of dismounted elements by defeating enemy in buildings, armor, bunkers, breaching walls to produce 50" x 70" holes, in all types of construction. BLOS must also engage enemy up to the 14th floor of a building. PGMM must provide very high trajectory precision-guided fires to overcome enemy masked by infrastructure. Snipers provide precision fires from occupied positions. RAH66, in a close support role, engages point targets with on-board precision missiles or provides suppressive fires. NLOS fires must provide precision destructive fires (LAM/PAM), as well as obscuration fires to assure freedom of maneuver.

- Conduct airmobile/air assault operations into urban LZs to attack key objectives in order to set conditions for decisive operations. Must be able to dismount LOS/BLOS mission equipment packages that can be delivered by CH47, manned or unmanned, from platforms to accompany dismounted forces. Packages are multi-purpose to provide ISR, fires and sustainment support to the dismounted force until linkup.

- Mobility overmatch is gained by retaining the employing the force in mounted and dismounted combination. Also, require multi-story building entry through roofs and upper floors. Dismounted forces must command and control movement through subterranean avenues. FCS must be able to negotiate natural obstacles and rubble.

- Provide urban C4ISR architecture that networks combat power through NLOS communications, as well as for subterranean movement to integrate combined arms from soldier to system, organic and external, air and ground, with strengthened relationships from supporting to supported. Land Warrior Block III empowers mounted and dismounted operations and fully integrates combat power in a dynamic, adaptive battlefield framework.

14. **Capability**. Provide superior capability to ***detect*** presence, identify disposition and counter all ***obstacles***, natural and manmade, to include anti-tank and anti-personnel (AT/AP) mines above and below surface, booby traps such as side-charge and remote detonated mines. Also, need ability to conduct route reconnaissance with multi-dimensional means to detect and bypass at greatly improved speeds (at least 50 kph). Have means to perform limited clearing of routes organically.

- Must have standoff means for detection and defeat of obstacles. Detect and locate other man-made obstacles.

- FCS architecture enables real-time dissemination of reported obstacles throughout the force.

- Mark or perform in-stride counters to neutralize mines at a distance.

- UA accepts augmentation packages from the UE for gap-crossing capabilities and to conduct in-stride or deliberate breach of disrupting and fixing obstacles.

15. **Capability.** FCS capability will be pooled at the Unit of Employment to enable the UA to cross narrow gaps, such as streams and irrigation ditches without loss in operational momentum. These capabilities will be task organized to the UA in tailored packages, as needed.

16. **Capability**. Tailor protective countermobility and survivability support available at transition to defensive operations using augmentation from UE.

6.1.3.2 Soldier:

The combination of quality Soldiers, competent leaders, and cohesive units creates a versatile, powerful force. The Army needs competent and versatile Soldiers able to accomplish missions in a challenging and ever changing global environment. They must be able to successfully accomplish tasks while operating as part of collective teams. Soldiers and leaders must exercise mature judgment and initiative under stressful circumstances and be capable of learning and adapting to meet the demands of full spectrum operations. Soldiers must also be technically and tactically proficient. They must employ and maintain increasingly sophisticated equipment. Current and future technologies require skilled Soldiers who understand their systems. Regardless of the importance of equipment or the expansion of technological capabilities, Soldiers are more important than machines. Soldiers, not equipment, accomplish missions and win wars. Leadership links soldiers' technical and tactical competence to operational success. Achieving combined arms effectiveness with complex systems demands adaptive and flexible soldiers.

17. Capability. Decrease ***task complexity and execution times*** to improve performance while minimizing sensory, cognitive, and physical demands on the soldier.

18. **Capability**. Enhance ***soldier endurance and stamina*** to fight effectively under all operational and environmental conditions:

- Full spectrum operations.
- Full range of conflict – MCO, SSC and PME.
- All terrain; open/rolling, complex and urban.
- All-weather.
- Chemical, Biological, Nuclear and Radiological (CBRN).
- All modes of operation – mounted, dismounted and airmobile.

19. Capability. Possess ***soldier mobility enhancements*** to reduce soldier workload through environmental ride quality and task automation. Exploit unmanned technology and manned systems to enhance continuous 24-7 operations.

6.1.3.3 C4 and Leadership Architecture:

20. **Capability.** The UA knowledge base and C4ISR architecture must enable ***leadership*** to be agile, intuitive and adaptive to all variables of dilemmas that occur in full spectrum operations and to lead the effort to reconcile what has to be done, applying necessary emphasis on priorities. Optimize C4ISR to empower decentralized/semi-autonomous small unit actions. Enable competent and capable leaders to see the environment, take initiative, seek the advantage aggressively, and employ the combat skills and competence of the formation as a fully integrated team to fight and win simultaneous, multiple engagements.

21. **Capability**. The FCS-equipped UA is a ***networked force***, horizontally and vertically integrated from strategic to tactical level. The UA comes under the command and control of a divisional ***UE or JTF*** for mission execution; for access to C4ISR, Army and joint fires, sustaining base; and to execute battalion-size airmobile operations. It is interoperable with Army legacy and Stryker units, joint and interagency units and is adaptable to allies, coalitions and NGOs with automatic language translation ability that can be tailored to local dialects.

22. **Capability**. FCS combat units are fully compliant with ***operational architectures*** and core information exchange requirements tailored to unit task and purpose. UA has access to information from organic, external and troops in contact optimized for rapid distribution to small units for greater operational effectiveness.

23. **Capability**. Provide collaborative, distributed ***problem solving and decision aids*** that empower Battle Command to support commanders, as well as staffs to advising commanders during planning, preparation and execution of operations. They must enable 'running' estimates of the situation, better problem solving and decision making, and better command and control over functional areas. FCS provides aids to enable commanders and staffs to operate effectively from anywhere on the battlefield while 100% mobile by:

    - Empowering decentralized execution and initiative by sub units in the UA linked to purpose.

    - Maintaining situational awareness and understanding at all times in the assigned AO and surrounding AI. This includes access to a 'running' estimate (COP) that is updated continuously, as well as an ability to collaborate with subject matter experts; subordinate, adjacent and higher commanders and staffs in real time to develop a complete appreciation of the situation.

- Filtering information so commanders and staffs can focus on pertinent items relative to mission purpose, recognize opportunity, and attend to decision making, problem solving and leadership.
- Enabling understanding of terrain; how to use it to advantage for its cover and concealment, for mobility advantage, and for employment of systems and units. Understand how to deny its use by the enemy.
- Allowing understanding of own unit capabilities and how to employ given operational variables. Enable employment of units with better confidence and operational effectiveness. Wargame base plans, branches and sequels against mission variables. Enable conception of solutions through accelerated collaborative planning, automated course of action analysis, rehearsal and simulations.
- Enabling recognition and exploiting of opportunities.
- Helping commanders deal with dilemmas and make reasoned and timely decisions based on superior information.
- Enabling C2 to direct decisive action through communicating orders, intent and supporting graphics collaboratively with the chain of command.
- Synchronize ISR, fires, maneuver, fires, survivability, leadership and sustainment.
- Battle track compliance with directions and status of preparation for mission execution.

24. **Capability.** The FCS tailorable, networked Battle Command system provides mutually supporting and relevant ***situation understanding to dismounted and mounted forces***, their leaders and Soldiers, in all terrain: open, complex and urban and in adverse weather conditions. Networked dismounted elements equipped with Land Warrior Block III capabilities and mounted force Battle Command construct must be able to integrate support from ISR, fires and maneuver to achieve overmatch in compartmented, restricted terrain.

25. **Capability.** Provide ***Airspace Command and Control*** management capability. Gain situational understanding through a single, integrated air picture (SIAP). Enable A2C2 in the UA as an integrated, networked process to facilitate multi-dimensional operations and provide positive, procedural coordination, integration, synchronization, and regulation for Army and joint manned and unmanned aviation assets within the battlespace. Provide A2C2 capability to:

- Deconflict, synchronize, and integrate all air-ground operational requirements with fires in time, space and altitude throughout the joint battlespace.

- Employ positive and procedural control measures.
- Develop and maintain a real-time SIAP thru multi-path communications with air-ground forces and fire support.
- Enable UA units to effectively orchestrate integrated air and ground maneuver, fires, and all arms air defenses to support operations within assigned AO's

.26. **Capability**. Provide dynamic, uninterrupted ***C4 architecture*** that is fully functional in all conditions, LOS and NLOS, with no latency at extended range and with redundant communications through a network that is:

- Highly integrated, single, ubiquitous, distributed, and capable of greatly increased yet scaleable data rates.
- Open, multi-layered architecture with multiple paths that provide a level of redundancy for assured communications that can be quickly diagnosed and are self-healing. Allow voice and data routing around inoperative nodes without interruption of information flow and situational awareness.
- Pervasive and optimized for mobile operations, where all platforms are integrated nodes, which do not rely on stationary, attended ground nodes and permit data management independent of the communication architecture.
- Leverage opportunistic use of the spectrum and commercial derivatives.
- Self-organizing and extendable – add entities to the network in a seamless manner and is permission based to meter who enters the layer.
- Backward adaptable to legacy and Stryker systems.
- Improved reliable, redundant NLOS communications to optimize connectivity through automatic link establishment to support operations in restricted, urban and subterranean environments that enables full integration of combined arms from soldier teams to system of systems, organic and external, air/ground, with strengthened relationships from supporting to supported.

27. Capability. Provide an aerial, multi-functional, non-line of sight communications relay and node capability that is pervasive throughout the UA Area of Operation. Capability accepts additional mission packages optimized for ISR such as FOPEN radar to also enables friendly force tracking through digital radio frequency tags (DRaFT) for advanced situational awareness, semi-automated clearance of fires, and combat identification to prevent fratricide.

28. Capability. ***FCS networks*** enable efficient information management to move vital information in a timely manner through the network tailored to unit mission, task and purpose. Continuously fuse, monitor and disseminate information from a variety of sources to support CCIR, responsive combat action, decision-making and analysis. Optimize automated integration and dissemination to small unit level. Enable fire control and distribution to assure lethality and survivability overmatch in full spectrum operations. Provide information to leaders in actionable form for 'running' estimates, to retransmit to subordinates, or to 'cut and paste' into mission orders. The ***FCS network:***

- Deploys without requiring space in the airflow for dedicated communications assemblages. Network must be fundamentally sound without signal sites.
- Employs a variety of means to connect users with local and global networks. Must not be dependent on a single means anywhere in the network.
- Provides common, general-purpose networks that all classified / unclassified customers can use and are interoperable with Joint networks. Establishes appropriate classification at the entity.

29. Capability. Provide ***protected information systems and networks*** with low, near zero, probability of detection (LPD / LPI), interception and exploitation.

- Detect and prevent intruders and malicious software; identify points of intrusion and origin, information compromised, and information introduced into the network. The system must automatically report such events and take actions to minimize the impact of such events on the performance of the network without inhibiting the network.
- Provide embedded information assurance/protection to deny network access to unauthorized personnel or systems.
- Provide active and passive countermeasures to protect the electromagnetic spectrum against conventional and unconventional threats.
- Accomplish POSNAV without continuous emission that reveals force disposition to threat.

6.1.3.4 Information:

30. Capability. Establish an ***adaptive learning repository*** with embedded capabilities to gain access to joint Operational Net Assessments (ONA) of mission areas and to build and manage an

evolving library of friendly and enemy DTLOMS and 'how to fight' lessons learned through semi-automated capturing and archiving of data from operational humans and sensors. This provides the framework for mission-focused training.

31. Capability. Enable development of the situation out of contact rapidly to the fidelity needed to initiate combat on our terms, engage at tactical standoff, and maneuver to positions of advantage prior to contact. Provide highly precise targetable data from sensor to shooter. Enable reliable, timely battle damage assessment during engagements to quickly transition to subsequent actions and ensure efficient expenditure of limited munitions. Provide strengthened capabilities to provide it to small units. Develops the situation out to 75km. R&S is fully integrated with fires.

32. Capability. Provide ability to ***see, understand and act first, then finish decisively***. Purpose of the ISR network is: 1) to drive immediate action, often in semi-autonomous or autonomous modes; 2) to enable Battle Command, decision-making and problem solving - before, during and after tactical operations. Information that answers CCIR must be provided from sensor direct to decider; 3) to provide leaders and staffs with 'running' estimates updated in near-real time from a wide variety of information sources, from automated and human, to provide the means for situation understanding; 4) to provide information for analysis. Information will be applied to establishing, maintaining and distributing a synthesized, single-fused COP that comprises baseline knowledge of the variables of terrain, weather, enemy, civilian and our own capabilities tailorable and scalable to unit task, purpose and situation. Purpose of the COP is to enable situation understanding, problem solving by leaders, and development of tactical concepts. It is near real time in utility and optimized for flow to small unit level. When combined with 'running' estimates, the COP enables leaders to recognize and seize opportunity. The quality of firsts is also empowered by the ability to collaborate with subject matter experts; subordinate, adjacent and higher commanders and staffs in real time to develop a complete appreciation of the situation. When combined, these capabilities must promote knowing, thinking and understanding one to three steps ahead of the enemy. They also must promote visualization of future action, concepts and endstate. The standard for a deliberate attack under hasty conditions is 80% fidelity of information of these variables. Information must be actionable and targetable for precision fires and maneuver to attack at advantage. Standard for a hasty attack is 60% fidelity. These capabilities listed above enable the force to:

- Execute Battle Command. Strengthen ability of leaders to not only understand their environment, but how to act accordingly to seek advantage very aggressively.
- Soldiers to work together more effectively as a combined arms team rather than as individuals or stove-piped functions.
- Fully integrate ISR, fires, maneuver, survivability and leadership.
- Gain precision acquisition to strike most dangerous and high payoff target sets prior to and during contact with destructive fires.
- Properly emplace close support fires fully integrated with maneuver.
- Confirm battle damage assessments.
- Monitor and direct maneuver to include: tactical movement, fires at standoff, overwatch, mutual support, fire and maneuver, tactical assault and transitions.
- UA the ability to discern and attack decisive points while foregoing unnecessary action. Create and exploit enemy weakness.
- Detect, bypass or reduce obstacles and booby traps in stride.
- Anticipate and see enemy reactions to our assault.
- Perform superior combat identification of friend and foe.

33. Capability. Provide digital high-resolution ***terrain tools*** to empower leaders to understand terrain, weather, hazards, and infrastructure, how to use to advantage and how to deny its advantage to an enemy in order to mitigate the 'home court' advantage he would normally enjoy. These must be tailored to the needs of leaders at each echelon in the UA. Be able to receive accurate, timely up-to-date digital map information of the battlefield. Units must be able to receive and disseminate terrain and weather information immediately throughout the AO even while on the move at all times. This tool must also enable: C2 of small unit tactical action by providing 3D resolution in close, complex and urban terrain in which a high degree of resolution is needed for SU and C2, virtual rehearsals, and terrain analysis.

6.1.3.5 Intelligence, Surveillance, and Reconnaissance (ISR):

34. Capability. Employ ***improved ISR*** means to see the full range of operational variables – terrain, weather, friendly and enemy force, non-combatants and detect threat actions in all environments. This will require a family of manned and unmanned; ground, air and space; day/night R&S means that extend vision beyond line of sight to gain

timely combat information through passive and aggressive ISR networked for unprecedented situational awareness and understanding to facilitate combat action or decisions. These capabilities are included in the UA to produce combat information:

- From external ISR.
- Teaming of RAH with unmanned air vehicles to conduct R&S and develop the situation for brigade.
- Mobile ground reconnaissance to develop battlefield mobility and emplace observation in the FCS combat battalion.
- BLOS elements in overwatch.
- Troops in contact.
- Unmanned air vehicles in each echelon of the UA will carry ISR/communications mission capabilities to provide target acquisition for fires, facilitate rapid movement, to retain freedom of maneuver, and to act as a communications node/relay. All UAV's sensors can be teamed with BLOS and NLOS capability. UAV's are reusable. They will not require airfields below brigade echelon. In combat battalions, SUAV's require 4-6 hour duration. In companies, the Organic Air Vehicle (OAV) is vehicle mounted and requires 1-2 hour duration. In dismounted platoons down to squad level, small, man-portable UAV (Starcluster-like) capability requires 20 minutes duration to look into the next terrain compartment. All UAV's must provide targetable information with target location accuracies to enable assured first round kill.
- Sensor data from organic sensors integrated into unit systems both manned, unmanned and soldier.

35. Capability. Perform automated ***pattern analysis*** to detect, locate and identify enemy combatants and systems. Eliminate unique single point ground control, and fusion stations. Enable situational understanding by standoff, staring (loitering capability) to gain indications of enemy composition, disposition, intent, reaction, reinforcement or withdrawal, strength and vulnerabilities, dead space or gaps, movement, and BDA before, during and after tactical operations. Perform analysis to assess:

- Moving and stationary entities that are mounted, dismounted or hidden.
- Enemy strengths. Discern and avoid fire sacks.
- Most dangerous enemy target sets for precision strike.
- Changes in enemy situation.
- Signatures as signal, glint and flash.

- Under all terrain, open, complex and urban, and adverse weather conditions.
- Against enemy entities that are dispersed, covered and concealed, masked and fleeting.
- Enemy use of decoys, deception and disinformation.
- Terrain and weather. Inform how to use it to advantage, how to best deny its use to the enemy, and implications of weather on tactical operations.
- Enemy use of obstacles and identify bypasses or how to properly neutralize.

36. Capability. Integrate synergistic use of ***ISR organic and external***: SOF, national, strategic, joint and Army manned and unmanned, air and ground, to retain freedom of maneuver, be able to operate in non-contiguous areas for extended periods of time and function widely separated, to gain and maintain contact with enemy elements and to provide high-resolution combat information on terrain and weather. Area sensors cue more discrete sensors. Employ robotics for high-risk situations. Access joint and national assets through reach through UE (DCGS-A) or JTF. Facilitate C2 of ISR to maximize understanding of the battlefield. Identify areas that have shortcomings and re-task to fill the void.

37. Capability. Provide near-real time ***combat identification*** of friend, foe and noncombatant across the spectrum of operations through platform-to-platform (air and ground), platform- to-soldier, soldier-to-platform, and soldier-to-soldier interrogation. Seamlessly integrate joint combat identification measures.

38. Capability. Enable ***blinding of the enemy*** through use of obscurants, EW, signature reduction, deception, and pattern avoidance techniques in order to see and understand first.

6.1.4 Lethality.

Enhanced lethality will allow Army forces to destroy any opponent quickly, with shattering effect. Lethal Army forces can combine the elements of combat power to provide overwhelming and decisive force at the right time, at the right place, and for the right purpose.

1. Capability. Enable command and control needed to ***synchronize fires, maneuver and ISR*** in near real time to close with and destroy enemy. Must design relationships so that fires are integral to maneuver. The

C4ISR network enables every element in the formation to generate combat power and contribute to the fight to achieve mass.

2. Capability. Provide the capability for ***lethal overmatch*** to destroy enemy formations or target sets that are dispersed and moving at longer ranges, with smaller calibers, greater precision, and more devastating target effects in all terrain and adverse weather conditions without frequent positioning through technical improvements in weaponry and munitions. Key enablers include organic line of sight, beyond line of sight, and non-line of sight fires. These fires must overmatch any enemy LOS, BLOS and NLOS capability in all conditions and environments, and are based on one shot one or more assured kills – with one or more kill disciplines and designs that overmatch the projected enemy capability in the areas of range, P_{ACQ}, $P_{HIT,}$ and P_{KILL} (LOS, BLOS, lethal, non-lethal and KE, CE, and DE) with scaleable effects.

3. Capability. Small tactical units provide ***mutual support*** from dispersed locations employing LOS and BLOS fires as the underpinning of tactical maneuver to: 1) ***overwatch*** tactical movement focused on NAIs/TAIs and perform immediate action at ranges beyond line of sight against opponents similarly equipped and trained; 2) combine NLOS effects to ***mass*** from dispersed locations; 3) execute ***attack by fire and support by fire*** missions at tactical standoff at prescribed BLOS ranges; 4) enable ***cooperative engagement*** capability between squads, platoons, companies /batteries and battalions. This construct involves LOS, BLOS and NLOS fires integrated with maneuver.

4. Capability. Have ***direct access*** to Army and joint ***fire delivery systems from external sources*** to provide extended range, networked, responsive precision or volume fires on demand in support of tactical maneuver. Be able to apply CAS on demand.

5. Capability. Employ improved ***precision munitions with destructive effects*** (threshold) and broad range of effects to include suppression and protection (objective) and capabilities to loiter or be maneuvered in flight, enabling man-in-the-loop terminal control of precision effects even after launch. Enable engagements out to range of 50km threshold and 75km at objective. The intent is to employ missiles-in-a-box as a Class V commodity – more analysis is required to validate mobility variant.

6. Capability. Provide ***LOS rapid gun firing capability*** from 0 to 2 km on the move. Capability is optimized for: developing the situation in contact, responding to actions on contact, executing fire and maneuver, and tactical assault. These fires will be optimized for:

- ***KE overmatch*** to kill enemy target sets, static and moving, with assured first round kill and to blow 50" x 70" holes in reinforced concrete walls.
- Lethality overmatch to kill T72 tanks equipped with enhanced reactive armor and active protective systems. These fires also suppress enemy on demand.
- Mobile protected fires in immediate direct support of infantry dismounted operations.
- Because of time and space problems in restricted compartments such as defiles and urban conditions, MGS LOS must be networked to support 'point and shoot' capabilities.

7. Capability. Direct fire ***BLOS*** opens up fields of fire previously denied and enables standoff engagement from temporary halt or on the move against all enemy target sets from 2-8 km on the move, out to 12-16km from static positions. Provide BLOS, if attainable, from one city block away. BLOS:

- Is optimized to support high speed mobile operations with required lethality to kill T72 tanks equipped with enhanced reactive armor and active protective systems.
- Exploits mobile or other sensors organic to an echelon to extend direct vision and weapon effects.
- Must be able to be employed to provide mobile protected fires in immediate direct fire support of infantry dismounted operations. BLOS organic to infantry companies will be able to dismount their BLOS capability to support dismounted and air assault operations. Module is mounted either on a robot or smaller troop carrier.
- Because of time and space problems in restricted compartments in defiles or urban terrain, MGS is networked to provide 'point and shoot' capabilities.
- Provides precision fires to kill at 14th story or into basements.

8. Capability. Provide ***networked mortar/cannon NLOS capabilities:***

- Employ precision-guided fires that can destroy high payoff and most dangerous target sets. ***Destructive fires*** will be measured in terms of creating opportunity for maneuver; destroying, dislocating or disintegrating enemy capabilities.
- Employ ***close support fires*** including protective and suppressive fires that are area, volume and duration in nature. Must also provide ultimate protection to maneuver formations through danger-close and final protective fires less than 600m from friendly troops. Also, provide

illumination. All fires in close support of maneuver will be measured in terms of assuring freedom of maneuver, fixing enemy and isolating objectives, protecting maneuver forces while closing with to destroy.

- Required ***fire support capabilitie***s are: 1) highly responsive to the dynamic, adaptive battlefield framework, 2) timely and agile to support forces in contact, 3) provide greater target location and weapon delivery accuracies, 4) provide sustained rates of fire and rates of kill with smaller teams and with less exposure, 5) available 24-7 in all weather and all terrain conditions at extended ranges (12-15 km for mortars, 30+ km for cannon), 6) provide high angle fires to support tactical operations in compartmented defiles or urban and mountainous terrain conditions, support highly mobile and dynamic situations in which maneuver employs speed to get to positions of advantage, 7) able to shift fires and mission types very quickly, and provide mutual support and combine effects to mass from dispersed locations, 8) optimized for opportunity engagements on demand, 9) scale effects to the nature of the target set and RoE.

9. Capability. Provide ***RAH66 teamed with unmanned platforms*** that fuse external ISR to perform R&S to develop the situation, to engage and destroy most dangerous and high payoff target sets during reconnaissance missions by employing external networked fires under brigade control, and to provide close support of ground maneuver.

10. Capability. FCS sensor to shooter linkages enable lethal overmatch by engaging enemy target sets near-instantaneously in seconds using automated, semi automated or manual ***fire control and distribution*** procedures; provide automated target identification to reduce latency in providing effects. Facilitate ***clearance of fires*** and discern high payoff and most dangerous targets rapidly in depth, while static or moving, and direct the most appropriate fires to destroy them.

11. Capability. ***Reduce ammunition weight*** to enable system, as well as unit agility by employing small caliber penetrators with increased accuracy.

12. Capability. ***Scale effects*** from lethal to non-lethal to focus effects precisely on selected targets and capabilities when required to separate targeted formations from the population to minimize collateral damage and non-combatant casualties.

13. Capability. Employ ***self-healing minefields*** that can be remotely armed and disarmed that are precision delivered either by cannon or HIMARS from divisional UE.

14. Capability. Maximize ***lethality of dismounted operations***, while decreasing the weight footprint of the soldier, by shifting fires functions from his back to enabling platform systems (manned and unmanned).

6.1.5 Survivability.

Survivability is the ability to combine systems, tactics, operations, and processes that afford optimum protection to deployed Army forces. Speed and lethality are essential characteristics for achieving survivable forces. Ground and air platforms that employ the best combinations of low observability, ballistic protection, long-range acquisition and targeting, early attack, and high first-round hit-and-kill technologies will be required to ensure the desired degrees of survivability.

1. Capability. Provide maximum ***protection of the individual Soldier***, whether that Soldier is on a platform (air or ground) or on the ground. Protect soldiers from ballistic, flame, thermal, and Chemical Biological (CB) and electromagnetic threat.

2. Capability. The Soldier and platforms will leverage integration of lighter, more effective ballistic protection (composite materials) with active and passive protection systems to enhance survivability against KE, and current and projected enemy lethal effects.

3. Capability. Ground platforms in FCS will achieve ***survivability overmatch*** during fire and maneuver, tactical movement, actions on contact against surprise encounters or local counterattacks, and tactical assaults through a combination of these measures:

- Using terrain to advantage for cover, concealment and mobility.
- Employing LOS, BLOS and NLOS fires in overwatch of displacing formations.
- Long-range acquisition to shoot first every time with assured first round kill, and to destroy targets each time we pull a trigger.
- Highly responsive suppression and obscuration fires while closing with and assaulting enemy. Be able to employ on-board immediate multi-spectral capabilities as well as the ability to employ wide area, long duration multi-spectral obscurants.
- Active and passive protection against KE/CE.
- Signature management technologies to degrade enemy detection and terminal targeting from all spectrums by signature management and stealth capabilities. Camouflage is included in this category.
- Superior dash speed from cover to cover.

- Platforms have ballistic protection against 14.5mm all-around, upgrade sides to 30mm with add-on armor ensembles.

4. Capability. FCS integrates into cooperative direct counter fire systems that provide slew to cue ***'avenge' kill capability*** to destroy enemy systems engaging or preparing to engage friendly systems.

5. Capability. Provide improved, embedded standoff sensor/detector capability to provide real-time warning and dissemination to protect the force against ***CBRN hazards***. Require multiple multi-functional networked sensors for appropriate situation awareness. Be capable of plugging into homeland force protection systems. UA can be augmented by special purpose CBRN capabilities from UE per METT-T.

6. Capability. Gain improved ***early warning*** from Theater Air and Missile Defense (TAMD) sources. Employ augmentation from UE to intercept enemy air threats, primarily helicopters and Unmanned Aerial Vehicles (UAV's) per METT-T. Employ multi-functional all-arms and man portable SHORAD defensive approach organic to the Unit of Action. Unit of Employment is responsible for more dangerous air threats such as cruise missiles and fixed wing aircraft.

7. Capability. Support ***counter-reconnaissance*** effort to blind enemy ISR through use of obscurants, jamming, signature reduction, deception, disinformation, and pattern avoidance techniques. Employ ISR to detect and find, then destroy, defeat, disrupt or neutralize enemy R&S through security operations.

8. Capability. FCS systems must have sufficient ***hardening from Directed Energy*** (DE) weapons, such as electro-magnetic pulse (EMP) and high-powered microwave.

9. Capability. Employ ***multi-purpose robots*** to perform manpower intensive, high-risk functions such as ISR missions in urban operations (inside buildings and the subterranean dimension) and reconnaissance / reduction of minefields, obstacles, doors and walls and in support of close assault.

10. Capability. Must have standoff means to ***detect and neutralize mines***, booby traps employing precision-guided thermo baric munitions delivered BLOS or NLOS and other means.

6.1.6 Sustainability.

Army forces must be sustainable across the spectrum of conflict. Sustainability requirements reflect the continuous, uninterrupted provision of combat service support to Army forces. Sustainability in a full spectrum Army will require a combat service support reach capability that allows

commanders to reduce stockpiles in theater while relying on technology to provide sustained velocity management and real-time tracking of supplies and equipment. This includes the requisite combat support—such as, military police, military intelligence, and signal corps—and combat service support—such as, medical, transportation, maintenance, legal, religious, personnel, and finance corps—to support the force.

1. Capability. Provide capability to ***manage battlefield distribution*** for pulsed operations, ***maintenance functions***, and ***transport*** linked to the UE sustaining base in order to build and sustain combat power in the Unit of Action.

2. Capability. Enable aggressive battlespace ***reduction in sustainment footprint*** of the Unit of Action and demand for replenishment. Unit of Action will have fewer vehicles and leverage reach capabilities.

3. Capability. Enable Unit of Action to ***organically sustain itself*** for three days of high tempo operations without replenishment from external sources in *continuous* combat in mid to high intensity conflict. Be self-sustainable for up to seven days in low-end conflict and peacetime military engagement. Figures account for organic Class I, III, V and water.

4. Capability. Enable significant ***sustainment effectiveness*** and efficiencies through:

- Innovative, multi-modal distribution concepts.
- Ultra-reliable and/or redundant components to remain operationally effective for the full three / 7-day mission period with minimal pulsed service or repair organic to the Unit of Action.
- Commonality across formations, in platforms and components, to simplify and reduce sustainment, support multi-functionality, reduce the many personnel and skills required in today's organizations, and contribute to simplification of deployment, maintenance and training.
- New power generation and high fuel efficiency with reduced dependence on petroleum products. Minimize use of external power generators.
- Simplified systems maintainability to reduce maintenance and replenishment requirements. System maintainability also will allow crews to perform on-site repairs. FCS platforms and complimentary systems included in the UA (such as FMTV and HMMWV) will be operated by crew chiefs that perform operator, organizational and some DS maintenance functions. Like and self-recoverability of platforms that enables rapid evacuation.

5. Capability. ***Reduce demand*** and minimize the maneuver sustainment burden on unit effectiveness through balanced system reliability, redundancy and repair, to include embedded diagnostics and prognostics on soldiers and platforms as well as modular component design. Responsive and on-demand sustainment is centralized at Unit of Action level. FCS lethal effects produce multiple, single round kills at the smallest caliber and with increased accuracy and effectiveness to reduce ammunition weight and cube to enable system, as well as unit agility.

6. Capability. Provide a system of potable ***water generation and replenishment*** at every echelon to minimize the need for special-purpose units and demands.

7. Capability. Enable ***modularity*** by accepting rapid force tailoring for increasing force versatility, operational flexibility, and agility in the UA area of operations.

8. Capability. Knowledge-based ***C4ISR architecture*** must enable:

- Reach to local, regional, and non-deployed sources both governmental and non-governmental, joint, coalition partners and allies.

- Secure capability, passively and actively, to monitor, report and submit requests to facilitate anticipatory sustainment, as well as to enhance blue COP to build, generate, and sustain maximum combat power during military operations.

9. Capability. Provide revolutionary means of ***transporting*** people and materiel to leverage new ground and aerial concepts for delivery.

- Transport using standard / non-standard, manned and unmanned, organic and external systems.

- Maneuver sustainment functions that require organic mobility will not degrade deployability, agility, and maneuverability of combat forces. Be able to perform maneuver sustainment over secured or unsecured Lines of Communication (LOC) using air and ground means – organic and external from the UE and joint.

- Enable quick cross leveling of supplies between platforms and units in contact and on the move. Leverage pre-configured packaging and platform-embedded materiel handling and lift for rapid, accurate and agile resupply that minimizes demand on soldiers.

- Dynamic re-routing and tracking of supply delivery as priorities dictate.

10. Capability. ***Dismounted forces must be self-sustaining*** during continuous operations for at least 24 hours. Enable increased endurance and cognitive awareness of soldiers for the assault by load optimization

and redistributing many functions from the soldier's back to systems or platforms. MULE-like robotic capability will perform a variety of sustainment / replenishment functions on a highly agile, light, but survivable platform to include:

- Carrying dismounted soldier loads.
- Operating in terrain requiring dismounted operations, under adverse weather conditions.
- Performing non-standard CASEVAC and services such as battery re-charging.
- Delivering classes of supply from battalion through company to soldiers to include resupply of ammunition.
- Performing combat tasks such as recon of high-risk areas.

11. Capability. Employ ***robotic systems*** to perform redundant and appropriate maneuver sustainment tasks in order to enhance continuous operations.

12. Capability. Enable medical treatment and evacuation of wounded soldiers across echelons to standard. FCS enables rapid medical diagnosis and triage, commander estimate of soldier medical status, and provides standard medical support.

- Platforms capable of carrying dismounted soldiers must have the ability to carry litter patients for extraction, transportation of severely injured casualties, and execution of in-stride casualty transfer to FCS medical variants. All manned FCS platforms capable of transporting and extracting casualties will have the ability of performing telemedicine / teleconsultation support between FCS personnel, combat lifesavers, combat medics, unit medical elements, and higher level medical treatment facilities.
- Enable the ability to treat on the move, hold, and transport casualties until evacuation or extraction. This ability provides far forward resuscitation and stabilization with an internal "stabilized" area for surgical intervention and treatment on the move. It also includes the ability to provide a fully automated, self-contained intensive care environment capable of maintaining a stable casualty for up to 72 hours.

6.1.7 Training:

Every day, the Army trains soldiers and units while developing leaders. Effective training is the cornerstone of operational success. It is a full-time job for commanders in peacetime and continues when units deploy. ***Training*** to high standards is essential for a full spectrum force; Army

forces must train to, and maintain, the highest readiness levels. Battle-focused training on combat tasks prepares soldiers, units, and leaders to deploy, fight, and win.

1. Capability. Develop UA ***doctrine and training architecture that compliments UE and joint doctrine development***.

2. Capability. Provide an ***embedded repository*** of 'how to fight' TTP in its training architecture that enables crosswalk from mission and training to common doctrine, TTP, individual and collective performance standards.

3. Capability. Provide ***multi-echelon training construct for individual soldiers and small unit collective skills:***

- Promotes competencies of combat skill proficiency to gain collective tactical and technical competencies that optimize ***individual soldiers and small unit collective skills*** for company and below. At the core of this strategy is the ability to conduct an FTX that involves live, virtual and/or constructive participation to assess if the unit demonstrates core competencies to accomplish mission task and purpose.

- Vertically and horizontally integrates system of systems at home station, institutions and while deployed. Provides an embedded training architecture for CTC quality AAR's that captures what happened, why and how to fix. Offers diagnostic matrices that crosswalk performance standards to MTP with graduated degrees of scenario difficulty.

- Enables leaders, soldiers and small units in the UA to learn how to work together more efficiently and effectively as a team and with others. Capable of representing the all UA echelons and Battlefield Functional Areas and operating in a live, virtual and/or constructive distributed framework to place demands on all elements in the Unit of Action.

- Employs a networked, 'tiered' Full Task Trainer embedded in FCS platforms with no reconfiguration. Leverages Unit of Action C4ISR architectures:

  √ Employs diagnostic software with performance metrics for leader, soldier and small unit skill proficiency mapped to Mission Training Plan (MTP) 'how to fight' to gain competencies.

  √ Enables combined arms proficiency for leaders, soldiers, small units and staffs.

  √ Scalable to needs of unit based on training assessments.

√ Draw from a TSP library of scenarios on demand. FTT must be able to load a variety of scenario METT-TC conditions to achieve full spectrum and global competency.

√ Enable training linkage from home station to National Simulation Center, to CTCs, and to other geographic locations (AC/RC). Can link to a semi-autonomous or world class OPFOR. Can also link to OC's from HICON, CTC or schoolhouse (SGIs).

√ Utilize during deployment to CTC or in theater.

√ Schoolhouse can conduct 'over-the-shoulder' training leveraging unit FTX.

√ Access a repository of doctrine, MTP and soldiers manuals for crosswalk to performance tasks, conditions and standards.

4. Capability. Provided ***multi-echelon training construct for leader skills, and synchronization and integration skills at battalion and brigade*** that:

- Promotes competencies of combat skill proficiency to gain collective tactical and technical competencies that optimize at battalion and brigade. At the core of this strategy is the ability to conduct an CFX that involves live, virtual and/or constructive participation.

- Vertically and horizontally integrates system of systems at home station, institutions and while deployed. Provides an embedded training architecture for CTC quality AAR's that captures what happened, why and how to fix. Offers diagnostic matrices that crosswalk performance standards to MTP with graduated degrees of scenario difficulty.

- Employs a networked, 'tiered' Full Task Trainer embedded in FCS platforms and command posts with no reconfiguration. Leverages Unit of Action C4ISR architectures:

  √ Employs diagnostic software with performance metrics for leader and staff skill proficiency mapped to Mission Training Plan (MTP) 'how to fight' to gain competencies.

  √ Enables combined arms proficiency for leaders and staffs.

  √ Scalable to needs of unit based on training assessments.

  √ Draw from a TSP library of scenarios on demand. FTT must be able to load a variety of scenario METT-TC conditions to achieve full spectrum and global competency.

  √ Enable training linkage from home station to National Simulation Center, to CTCs, and to other geographic locations (AC/RC). Can also link to a semi-autonomous or world class

OPFOR. Can link to OC's from the HICON, CTC or schoolhouse (SGIs).

√ Utilize during deployment to CTC or in theater.

√ Schoolhouse can conduct 'over-the-shoulder' training leveraging unit CFX.

- Access a repository of doctrine, MTP and soldiers manuals for crosswalk to performance tasks, conditions and standards

- Develop, through training and experience, thinking, confident, versatile, adaptive, and seasoned leaders at the tactical level required for the digitized, rapidly deployable Unit of Action.

- Develop leaders skilled in synchronization and coordination, able to dominate in the realm of decision making and be combat proficient at the collective level, have a competency in the variables of terrain, enemy, weather and own capabilities; to seek advantage aggressively; to act when and where it gains the best tactical advantage for starting and finishing engagements, employ forces with greater efficiency and effectiveness.

- Hones the proficiency of leaders to perform their individual responsibilities, how they fit into framework of small units, how they operation as a member of a leadership team. Provide leader exercises that are mission – focused at small unit level, hands-on performance oriented, experiential training to plan, prepare and execute operations.

5. Capability. Be able to link training constructs for battalion and brigade with training for individual soldiers and small unit collective skills to conduct ***multi-echelon training*** that can be distributed to live, virtual and constructive participants. Can train up 3-6 battalions with pooled UE type assets, institutional and joint participants , CTC, AC/RC at home and remotes stations.

6. Capability. To enable responsiveness, all aspects of FCS Full Task Trainer system of systems must be easy to learn, user friendly, preclude catastrophic mistakes, and facilitate operational competence. To achieve this end, a formal and accountable "usability engineering" process must be rigorously and systematically incorporated into the developmental process.

7. Capability. Provided ***virtual rockdrill construct for multi-echelon rehearsals by soldiers, leader, small units and to enable synchronization and integration at battalion and brigade*** that:

- Promotes competencies of combat skill proficiency to gain collective tactical and technical competencies that optimize at battalion

and brigade. At the core of this strategy is the ability to conduct an CFX that involves live, virtual and/or constructive participation.

- Is a collaborative wargame tool for developing tactical concepts, branches and sequels.
- Enables mission rehearsals that can be distributed to live, virtual and constructive participants.
- Can load scenario conditions tailored to mission, task and purpose.
- Empowers more efficient and effective rehearsals that assemble the parts collaboratively and are tiered.
- Access a repository of doctrine, MTP and soldiers manuals for crosswalk to performance tasks, conditions and standards.

CHAPTER 7 ANNEXES

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B – Unit Of Employment Considerations

C – UA Missions

D – Brigade Staff Functions

E – Operational Characteristics Specific To Various Terrain Sets

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TBP

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